POLARAD

HANDBOOK OF OPERATING AND MAINTENANCE INSTRUCTIONS

MICROWAVE RECEIVER MODEL R

POLARAD ELECTRONIC INSTRUMENTS,
DIVISION OF POLARAD ELECTRONICS CORPORATION
34-02 QUEENS BLVD., LONG ISLAND CITY 1, N. Y.

POLARAD

INSTRUCTION MANUAL

MICROWAVE RECEIVER
MODEL R

POLARAD ELECTRONIC INSTRUMENTS

A DIVISION OF POLARAD ELECTRONICS CORPORATION

34-02 QUEENS BOULEVARD · LONG ISLAND CITY 1, N.Y. · AREA CODE 212 · EXETER 2-4500

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DIFFERENCE DATA SHEET

MODEL R MICROWAVE RECEIVER

The changes listed below apply only to equipment having the following serial numbers: 1601, 1609, 11-28, 11-36, 11-39, 11-41, 11-44, 11-50, 11-61, and 12-1 and up.

In figure 3-7, add Mid Scale Adj control R605 and TP601 (see figure 1).

In paragraph 4-30, add the following to step b:
"With no r-f signal applied to the equipment, rotate the MANUAL GAIN control fully counterclockwise. Connect a vtvm between TP601 and ground and set Mid Scale Adj control R605 to obtain a vtvm indication of -0.38 volts. Remove the vtvm."

In figure 5-12, add Mid Scale Adj control R605 and TP601 (see figure 2).

In table 6-2, delete R605 and add the information noted below.

TABLE 6-2. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R605	RESISTOR, VARIABLE, COMPOSITION, 1 MEGO, 20 PCT, 1/2W/POLARAD PART NO. B116364	X3541	DR	1
TP601	SAME AS J505			

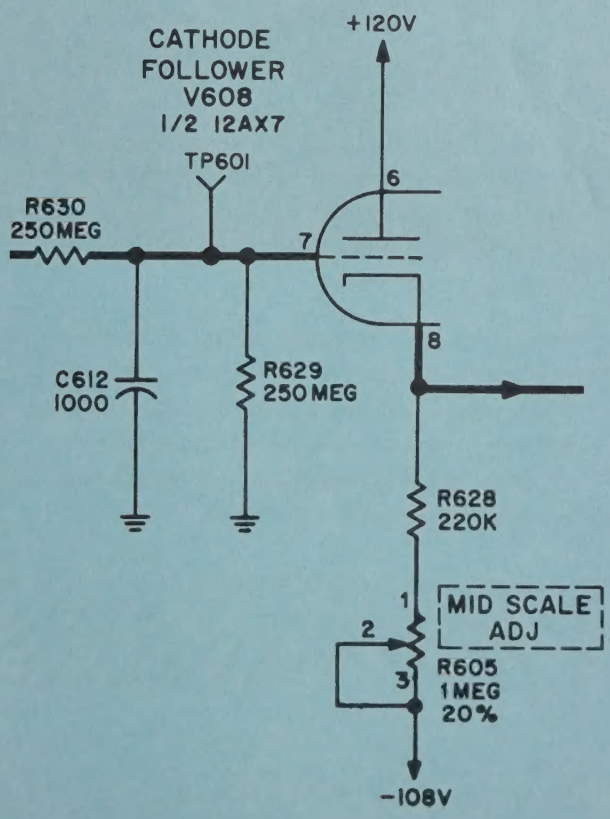
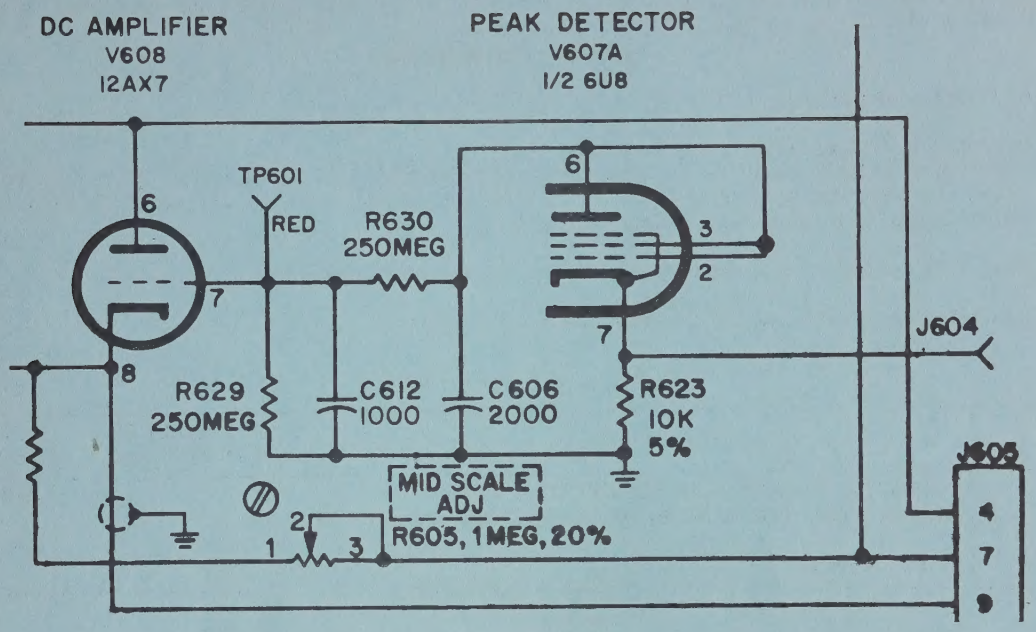


Figure 1


DC AMPLIFIER
V608
12AX7
PEAK DETECTOR
V607A
1/2 6U8
TP601
RED
R630
250MEG
R629
250MEG
C612
1000
C606
2000
R623
10K
5%
J604
J605
MID SCALE
ADJ
R605, 1MEG, 20%
6
7
8
2
3
1

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WARNING

EXPOSURE TO RADIATION FIELDS
GREATER THAN 10 MILLIWATTS
PER SQUARE CENTIMETER IS
DANGEROUS AND CAN BE FATAL
TO HUMAN LIFE

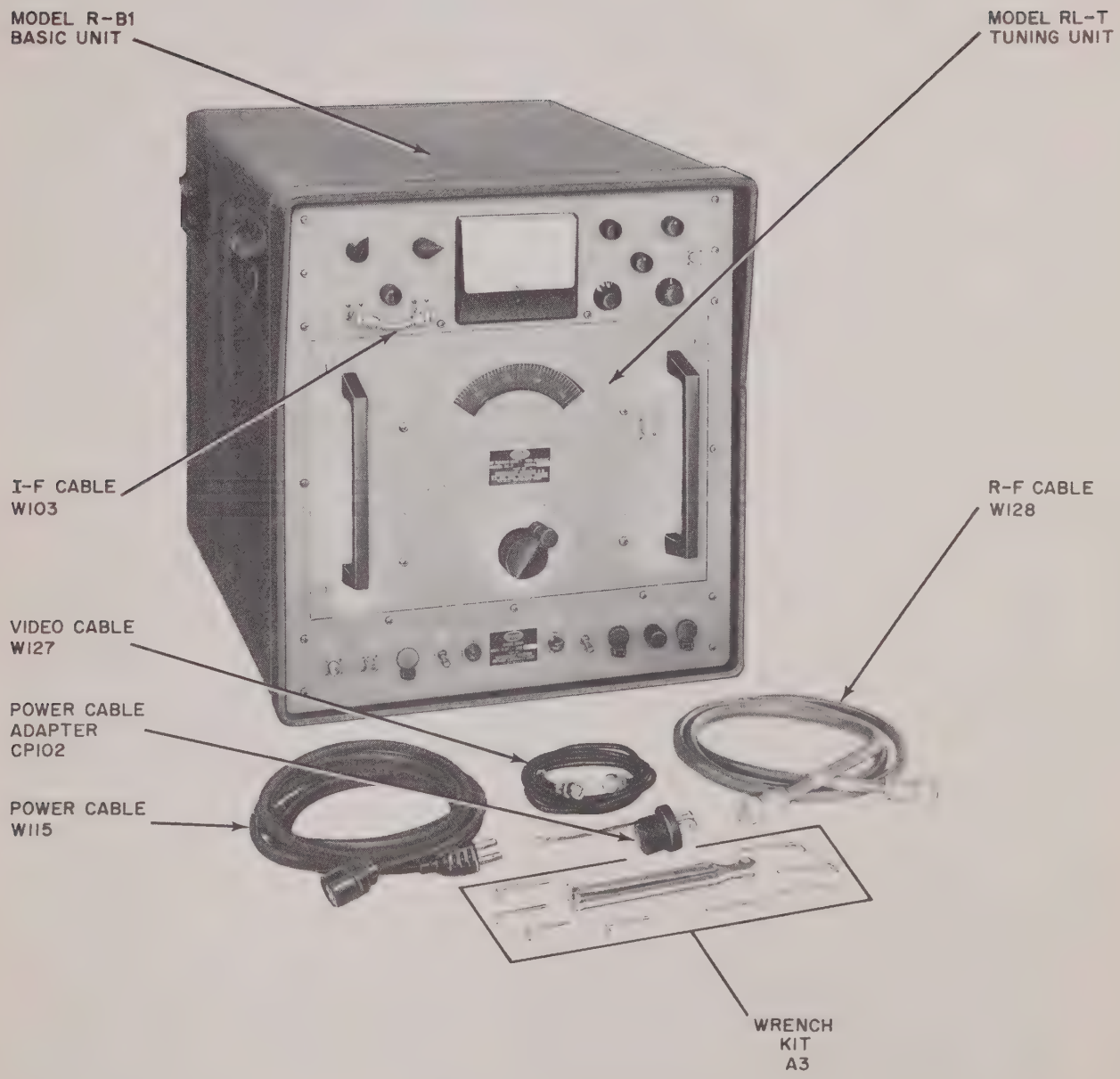


Figure 1-1. Model R Microwave Receiver

SECTION I
INTRODUCTION

1-1. SCOPE OF HANDBOOK.

1-2. This handbook contains instructions for the use and maintenance of the Model R Microwave Receiver (see figure 1-1), manufactured by the Polarad Electronic Instruments Division of Polarad Electronics Corporation, Long Island City, N. Y. The handbook includes a general description of the Model R Microwave Receiver, operating instructions, theory of operation, and maintenance information.

1-3. PURPOSE AND USE OF THE EQUIPMENT.

1-4. The Polarad Model R Microwave Receiver (hereafter referred to as the Model R) is a sensitive and frequency-selective test instrument providing broad frequency coverage through the use of eight interchangeable plug-in tuning units. The Model R permits the comparative power level measurements of virtually every type of signal found in microwave work. In addition, audio, video, recorder, bolometer, and trigger outputs are provided for external monitoring of applied signals.

1-5. Specific applications of the Model R include its use as a:

a. broadband receiver for the reception of continuous-wave (cw), frequency-modulated (fm), amplitude-modulated (am), and pulse-modulated r-f signals;

b. means of measuring the relative power levels between a fundamental signal and its harmonics;

c. means of measuring the bandwidth of microwave cavities;

d. frequency meter;

e. means of measuring the noise figure of microwave amplifiers;

f. means of measuring and calibrating attenuators over a 70-db range;

g. trigger pulse amplifier.

1-6. GENERAL DESCRIPTION.

1-7. The Model R is a compact, self-contained unit consisting of the Model R-B1 Basic Unit and eight (8) easily interchangeable plug-in tuning units. In operation, one of these plug-in tuning units is installed in the basic unit so that the two appear as a single assembly (see figure 1-1).

1-8. The Model R-B1 Basic Unit, which is the control and monitoring portion of the Model R, consists of a panel, frame, and chassis assembly. The front panel assembly serves as a mounting for the basic unit operating controls, indicators, and connectors. The lower area of the panel has an opening designed to accommodate any one of the eight interchangeable plug-in tuning units.

1-9. Each interchangeable plug-in tuning unit contains the r-f receiving and frequency conversion circuitry of the system. The receiving circuitry is continuously tunable throughout the band by means of a single front panel control.

1-10. MODEL R COMPONENTS.

1-11. The components that constitute the complete Model R system are listed in table 1-1; their functions are described in paragraphs 1-12 through 1-23.

1-12. MODEL R-B1 BASIC UNIT. The basic unit, being the control and monitoring portion of the Model R system, is supplied as an integral system component.

1-13. INTERCHANGEABLE TUNING UNITS. The eight tuning units available (refer to table 1-1) are supplied as ordered. The band covered by each tuning unit is listed in table 1-2.

1-14. WAVEGUIDE TRANSITION CP901. This transition (supplied only with the Model RKS-T Tuning Unit) is provided to couple type RG-52/U waveguide to the WR-75 input of the tuning unit.

1-15. WAVEGUIDE TRANSITION CP902. This transition (also supplied only with the Model RKS-T Tuning Unit) is provided to couple RG-91/U waveguide to the WR-75 input of the tuning unit.

1-16. WAVEGUIDE TRANSITION CP1001. This transition (supplied only with the Model RKU-T Tuning Unit) is provided to couple RG-53/U waveguide to the WR-51 input of the tuning unit.

1-17. WAVEGUIDE TRANSITION CP1201. This tran-

sition (supplied only with the Model RQ-T Tuning Unit) is provided to couple RG-96/U waveguide to the WR-97 input of the tuning unit.

TABLE 1-1. MODEL R SYSTEM COMPONENTS

System Component	Polarad Model or Part Number
Basic Unit	Model R-B1
Tuning Unit*	Model RR-T
Tuning Unit*	Model RL-T
Tuning Unit*	Model RS-T
Tuning Unit*	Model RM-T
Tuning Unit*	Model RX-T
Tuning Unit*	Model RKS-T
Tuning Unit*	Model RKU-T
Tuning Unit*	Model RQ-T
Waveguide Transition CP901**	A124069
Waveguide Transition CP902**	A124068
Waveguide Transition CP1001+	B15931
Waveguide Transition CP1002+	B15930
Waveguide Transition CP1201++	B113181
Power Cable W115	B145871
Power Cable Adapter CP102	A131966
R-f Cable W128	B12551
I-f Cable W103	C147157
Video Cable W127	B12553
Wrench Kit A3	A25109

* Supplied as ordered.
** Supplied only with Model RKS-T Tuning Unit.
\+ Supplied only with Model RKU-T Tuning Unit.
++ Supplied only with Model RQ-T Tuning Unit.

1-18. POWER CABLE W115. This 10-foot power cable is provided to couple the basic unit to a 115/230-volt, 60-cps, single-phase power outlet.

TABLE 1-2. TUNING UNIT FREQUENCY BANDS

Tuning Unit	Frequency Band
Model RR-T	400 to 1, 000 Mc
Model RL-T	950 to 2, 040 Mc
Model RS-T	1, 900 to 4, 340 Mc
Model RM-T	4, 200 to 7, 740 Mc
Model RX-T	7, 300 to 11, 260 Mc
Model RKS-T	9, 500 to 15, 600 Mc
Model RKU-T	14, 700 to 22, 000 Mc
Model RQ-T	20, 300 to 46, 700 Mc

1-19. POWER CABLE ADAPTER CP102. This adapter is supplied to couple the polarized three-prong plug terminating W115 to a standard two-wire power outlet.

1-20. R-F CABLE W128. This six-foot cable, employed to couple the r-f signal to any one of the coaxial-input tuning units, is supplied as part of the system and consists of type RG-9B/U coaxial cable terminated with type UG-21B/U connectors at each end.

1-21. I-F CABLE W103. This cable, used to couple the i-f signal from the PREAMP OUTPUT connector to the IF INPUT connector (both located on the basic unit front panel), consists of type RG-55/U coaxial cable terminated with type BNC connectors at each end. This cable is supplied as part of the system.

1-22. VIDEO CABLE W127. This eight-foot cable, consisting of type RG-58/U coaxial cable terminated with type UG-88/U connectors at each end, is supplied with the system to couple the signal at either the VIDEO OUTPUT or TRIGGER OUTPUT connectors (both located on the basic unit front panel) to auxiliary test equipment.

1-23. WRENCH KIT A3. This kit contains the hand tools required for the adjustment and alignment of the various electromechanical assemblies within the system.

1-24. GENERAL ELECTRICAL CHARACTERISTICS.

1-25. The general electrical characteristics of the Model R are listed below.

Frequency range	400 to 46,700 Mc in eight overlapping bands
Model RR-T Tuning Unit	400 to 1,000 Mc
Model RL-T Tuning Unit	950 to 2,040 Mc
Model RS-T Tuning Unit	1,900 to 4,340 Mc
Model RM-T Tuning Unit	4,200 to 7,740 Mc
Model RX-T Tuning Unit	7,300 to 11,260 Mc
Model RKS-T Tuning Unit	9,500 to 15,600 Mc
Model RKU-T Tuning Unit	14,700 to 22,000 Mc
Model RQ-T Tuning Unit	20,300 to 46,700 Mc
Frequency accuracy	±1%
Receiver type	Triple-conversion superheterodyne
Input impedance (coaxial-input tuning units)	50 ohms (nominal)
R-f input signals	CW, fm, am, and pulsed signals
Maximum r-f input level:	
Coaxial-input tuning units	0.1 volt rms
Waveguide-input tuning units	60 db above sensitivity
Minimum r-f sensitivity (signal plus noise equals twice noise):	
Model RR-T Tuning Unit	-85 dbm
Model RL-T Tuning Unit	-80 dbm
Model RS-T Tuning Unit	-80 dbm
Model RM-T Tuning Unit	-80 dbm
Model RX-T Tuning Unit	-80 dbm
Model RKS-T Tuning Unit	-65 dbm
Model RKU-T Tuning Unit	-65 dbm
Model RQ-T Tuning Unit	-65 dbm (low end); -55 dbm (high end)
Image and spurious response rejection	60 db (minimum) for tuning units with preselection
Intermediate frequencies:	
First	260 Mc
Second	140 Mc
Third	40 Mc
Bandwidth (-3 db)	3 Mc
Automatic gain control (agc)	Operative when using 30 db or 70 db scales
Gain stability	Better than ±2 db
Afc pull-out range	±2 to ±12 Mc off center frequency, depending on operating frequency
Output meter:	
Scales	30 DB, 70 DB, linear, and supply monitoring scales
Movement	1 ma
Response time	275 ±25 milliseconds
Damping	1 to 6% overshoot
Recorder output	For use with external 100 millivolt recorder
Video output	20 cps to 1.5 Mc (flat within 2 db) into 100 ohms
Trigger pulse output	10 volts peak-to-peak (minimum) into 100 ohms

Audio output:

Frequency . . . . . 40 to 5,000 cps
Power . . . . . 50 milliwatts (minimum) into 500 ohms

Fm output:

Bandwidth . . . . . 3 Mc
Deviation . . . . . ±1.5 Mc

Operating power requirements . . . . . 115 or 230 volts (±10%), 60-cps, single-phase, 460 watts (50-cps operation available on special units)

1-26. ELECTRON TUBE, CRYSTAL DIODE, INDICATOR LAMP, AND FUSE COMPLEMENT.

1-27. Table 1-3 lists the types and functions of the entire complement of electron tubes and crystal diodes employed in the Model R. The types and functions of the indicator lamps and fuses are listed in table 1-4.

TABLE 1-3. ELECTRON TUBE AND CRYSTAL DIODE COMPLEMENT

Ref. Symbol No.	Electron Tube or Crystal Diode Type	Function
Power Supply (Model R-B1 Basic Unit)		
V101, V102, V106, V111, and V112	5R4GY	Full-wave rectifiers
V103	807	Series regulator
V104, V108, and V116	6AU6	Control amplifiers
V105 and V109	0A2	Voltage references
V107	6AR6	Series regulator
V110	6AH6	Afc amplifier
V113	6X4	Half-wave rectifier
V114 and V115	6AS7	Series regulators
V117	0B2	Voltage regulator
260/140-Mc Two-Stage Preamplifier (Tuning Units)		
CR201	1N82	Second Mixer
V201	5876	260-Mc i-f amplifier

TABLE 1-3. ELECTRON TUBE AND CRYSTAL DIODE COMPLEMENT (Cont'd)

Ref. Symbol No.	Electron Tube or Crystal Diode Type	Function
260/140-Mc Two-Stage Preamplifier (Tuning Units)		
V202	6AK5	140-Mc i-f amplifier
260/140-Mc Three-Stage Preamplifier (Tuning Units)		
CR201	1N82	Second mixer
V201 and V202	7077	260-Mc i-f amplifiers
V203	6AK5	140-Mc i-f amplifier
Crystal-Controlled Local Oscillator (Model R-B1 Basic Unit)		
V301	12AT7	30-Mc oscillator/ frequency doubler
V302	6AK5	60-Mc amplifier
V303	6AK5	Frequency doubler
V304	6AK5	Frequency tripler
140/40-Mc I-f Amplifier (Model R-B1 Basic Unit)		
V401 through V404	6AK5	140-Mc i-f amplifiers
V405	6AK5	Third mixer
V406 through V408	6AK5	40-Mc i-f amplifiers
V409	6AN5	40-Mc i-f power amplifier
V410	6AL5	Agc detector/signal detector

(Cont'd)

TABLE 1-3. ELECTRON TUBE AND CRYSTAL DIODE COMPLEMENT (Cont'd)

Ref. Symbol No.	Electron Tube or Crystal Diode Type	Function
140/40-Mc I-f Amplifier (Model R-B1 Basic Unit)		
V411	12AU7	Trigger cathode follower
V412	12AU7	Video cathode follower
Afc/Fm Amplifier (Model R-B1 Basic Unit)		
CR501 through CR504	1N34A	Discriminator diodes
V501 and V502	6AU6	40-Mc i-f amplifiers
V503 and V504	6AK5	40-Mc limiters
V505 and V506	6AH6	Afc driver amplifier
V507 and V508	6AU6	Fm driver amplifier
V509	12AT7	Video cathode follower/trigger cathode follower
Detected Signal Amplifier (Model R-B1 Basic Unit)		
V601	12AT7	Video amplifier
V602	6CL6	Video amplifier
V603	6AU5	Pulse cathode follower
V604	12AT7	Video amplifier/ audio amplifier
V605	6AS5	Audio power amplifier
V607	6U8	Dc amplifier
V608	12AX7	Dc amplifier
Model RL-T Tuning Unit		
CR701	1N23C	First mixer
V701	ZV1010/ 7505	Klystron local oscillator
V702	6X4	Protective diode

TABLE 1-3. ELECTRON TUBE AND CRYSTAL DIODE COMPLEMENT (Cont'd)

Ref. Symbol No.	Electron Tube or Crystal Diode Type	Function
Model RS-T Tuning Unit		
CR801	1N23C	First mixer
V801	ZV1009/7049	Klystron local oscillator
V802	6X4	Protective diode
Model RM-T Tuning Unit		
CR901	1N23D	First mixer
V901	5721	Klystron local oscillator
V902	6X4	Protective diode
Model RKS-T Tuning Unit		
CR901	1N286	First mixer
V901	5721	Klystron local oscillator
V902	6X4	Protective diode
Model RX-T Tuning Unit		
CR1001	1N2510	First mixer
V1001	5721	Klystron local oscillator
V1002	6X4	Protective diode
Model RKU-T Tuning Unit		
CR1001	1N286	First mixer
V1001	5721	Klystron local oscillator
V1002	6X4	Protective diode
Model RR-T Tuning Unit		
CR1101 through CR1104	F6	Full-wave rectifier
CR1105	1N82	Second mixer
CR1106	1N21D	First mixer

(Cont'd)

TABLE 1-3. ELECTRON TUBE AND CRYSTAL DIODE COMPLEMENT (Cont'd)

Ref. Symbol No.	Electron Tube or Crystal Diode Type	Function
Model RR-T Tuning Unit		
V1101 and V1102	6299	R-f amplifiers
V1103	ZV1010/ 7505	Klystron local oscillator
V1104	6X4	Protective diode
V1105	5876	260-Mc i-f amplifier
V1106	6AK5	140-Mc i-f amplifier
V1107 and V1108	0B2	Voltage regulators
Model RQ-T Tuning Unit		
CR1201	1N53	First mixer
CR1202	1N26	First mixer
V1201	V39C	Klystron local oscillator
V1202	6X4	Protective diode

TABLE 1-4. INDICATOR LAMP AND FUSE COMPLEMENT

Ref. Symbol No.	Type	Function
Indicator Lamps		
DS101	NE51	Basic unit POWER pilot lamp
DS102	NE51	Basic unit KLYSTRON pilot lamp
DS701 and DS702	47	Model RL-T Tuning Unit dial lamps
DS801 and DS802	47	Model RS-T Tuning Unit dial lamps
DS901 and DS902	47	Models RM-T and RKS-T Tuning Unit dial lamps
DS1001 and DS1002	47	Models RX-T and RKU-T Tuning Unit dial lamps
DS1101 and DS1102	47	Model RR-T Tuning Unit dial lamps
DS1201 and DS1202	47	Model RQ-T Tuning Unit dial lamps
Fuses		
F101* and F102*	3AG,5A SLO-BLO	Power line protective diode
F1101	3AG,2A	Model RR-T Tuning Unit auxiliary power supply protective fuse

*For 230-volt operation, replace with type 3AG SLO-BLO fuses rated at 2.5 amperes @ 250 volts

SECTION II
OPERATION

2-1. GENERAL

2-2. The Model R is shipped complete and is ready to use upon receipt; no special or permanent installation procedures are necessary unless the equipment has been ordered in a rack-mounted configuration. The Model R should be unpacked upon receipt, observing the usual precautions when handling a precision instrument.

WARNING

THE MODEL R (WITH A TUNING UNIT INSTALLED) WEIGHS APPROXIMATELY 170 POUNDS. IT IS STRONGLY RECOMMENDED THAT AT LEAST TWO PERSONS BE EMPLOYED AT ALL TIMES WHEN HANDLING THE EQUIPMENT.

2-3. After unpacking the equipment, plan its installation. Unless specifically ordered otherwise, the Model R is shipped as a cabinet-mounted unit for either bench or cart use (see figures 2-1 and 2-2). The equipment is available in both flush-panel and protruding-panel configurations for mounting in a standard 19-inch rack (see figures 2-3 and 2-4, respectively).

2-4. OPERATION.

2-5. The procedures for proper operation of the Model R are described in paragraphs 2-6 through 2-9.

2-6. OPERATING CONTROLS, INDICATORS, AND CONNECTORS. The operating controls, indicators, and connectors necessary for the operation of the Model R are located on the basic unit and tuning unit front panel assemblies, as illustrated in figure 2-5; their functions are described in table 2-1.

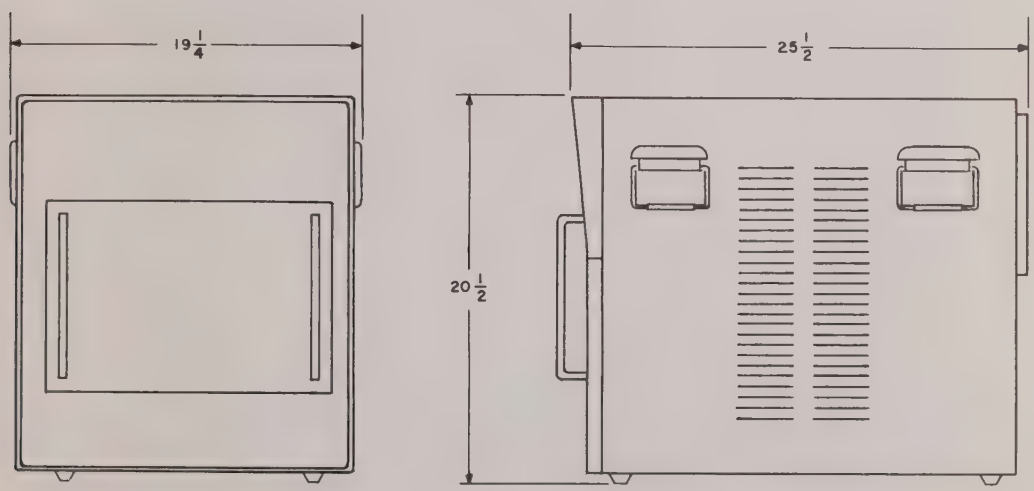


Figure 2-1. Model R Microwave Receiver, Installation Outline Drawing

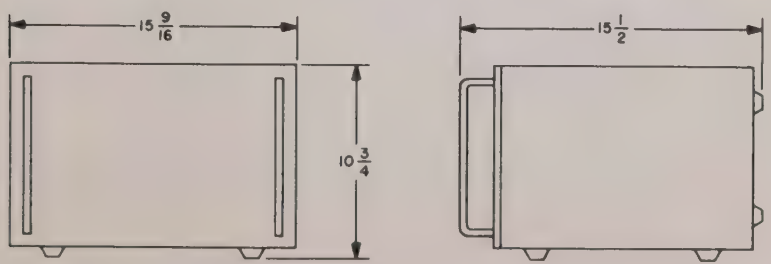


Figure 2-2. Tuning Unit in Storage Container, Installation Outline Drawing

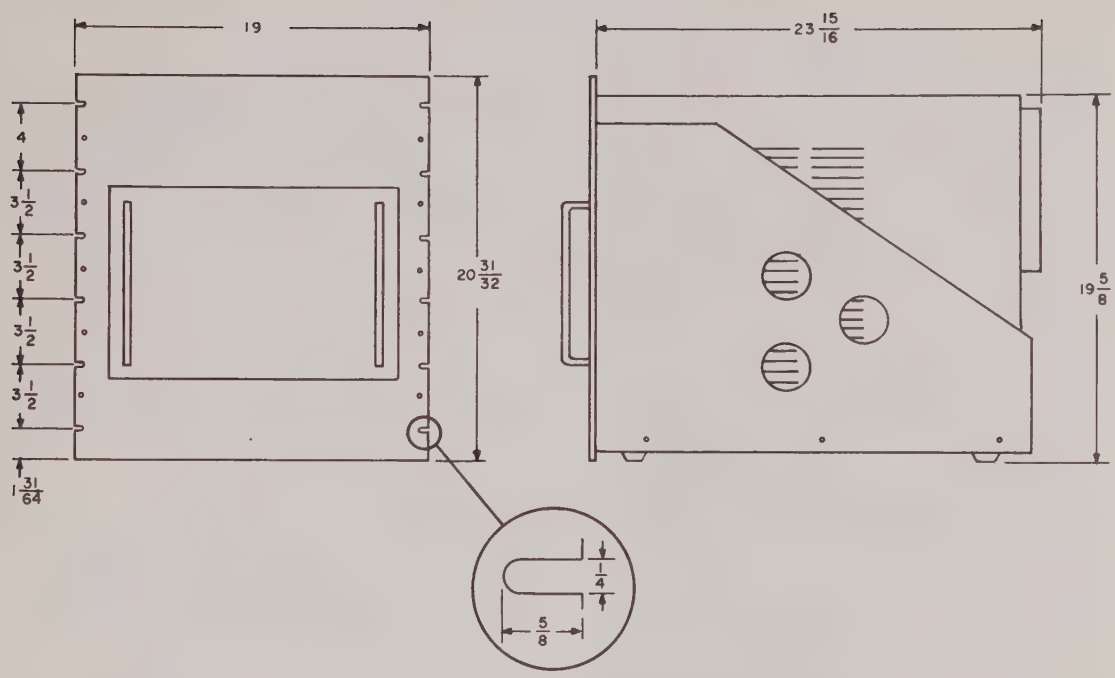


Figure 2-3. Model R Microwave Receiver (Flush-Panel Rack-Mounted Configuration), Installation Outline Drawing

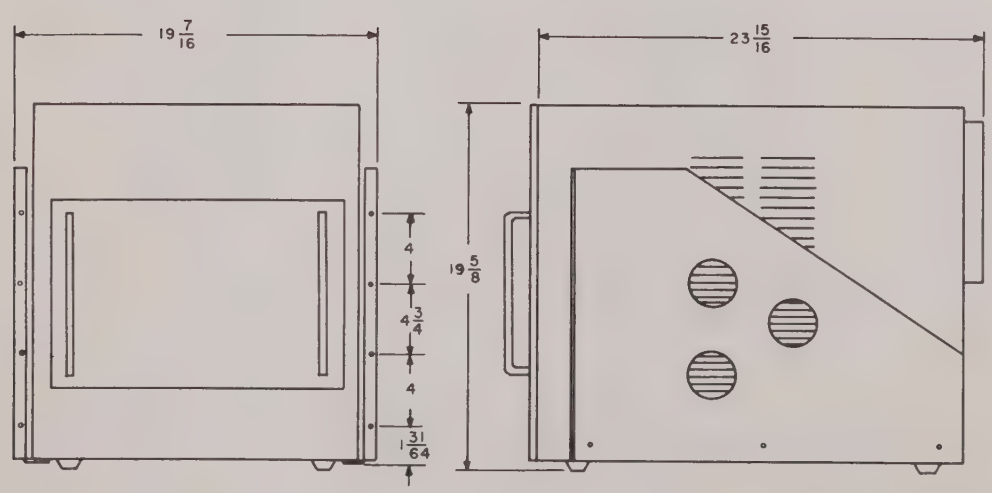


Figure 2-4. Model R Microwave Receiver (Protruding-Panel Rack-Mounted Configuration), Installation Outline Drawing

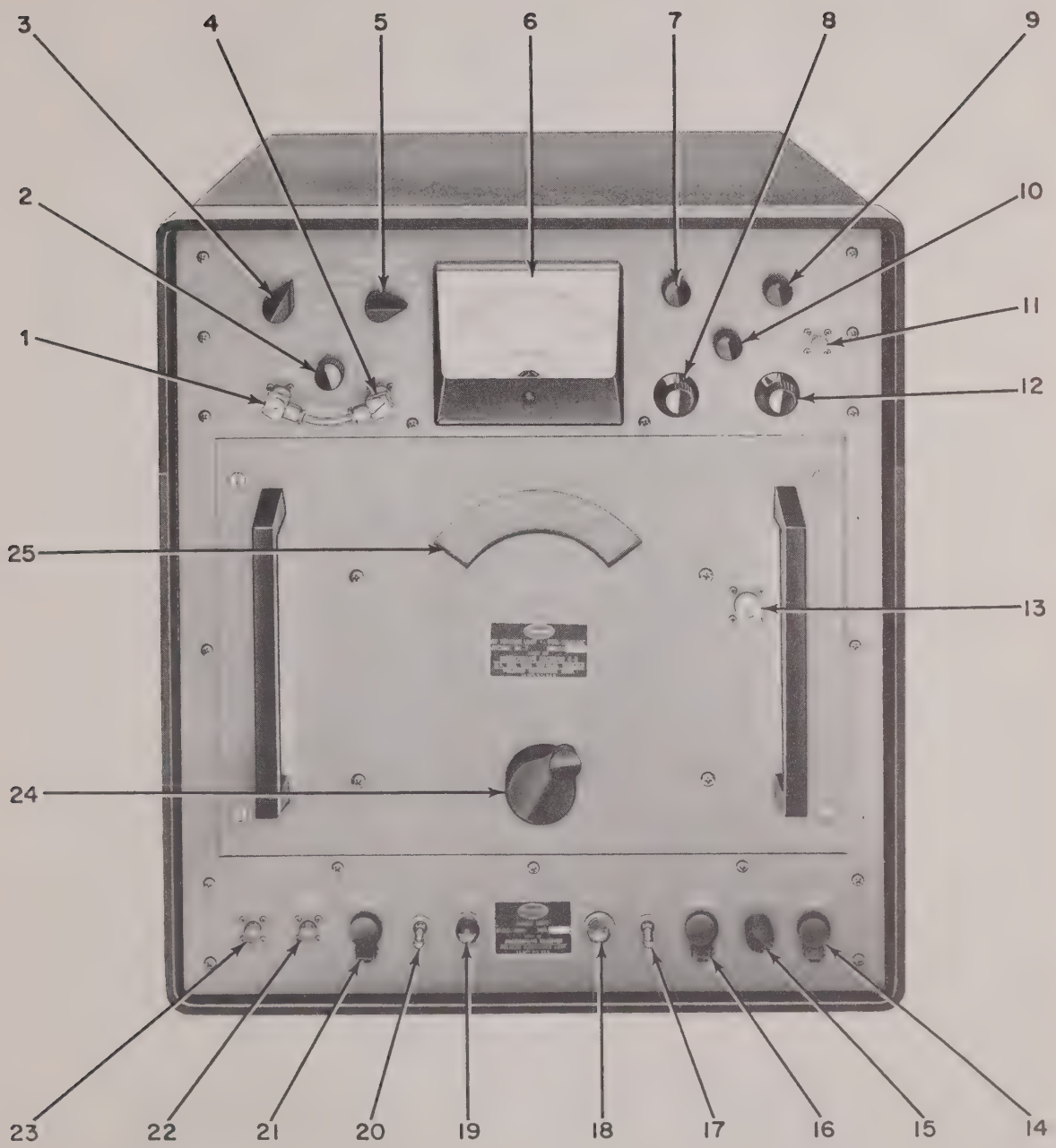


Figure 2-5. Operating Controls, Indicators, and Connectors

TABLE 2-1. OPERATING CONTROLS, INDICATORS, AND CONNECTORS

Control, Indicator or Connector	Figure 2-5 Index No.	Function
PREAMP OUTPUT connector	1	Provides access to 140-Mc second i-f signal
AM FM switch	2	Couples modulation content of applied signals to both the VIDEO OUTPUT and AUDIO OUTPUT connectors while simultaneously permitting triggering of auxiliary test equipment by a positive pulse available at the TRIGGER OUTPUT connector
METER SCALE switch	3	Selects dynamic range of equipment
IF INPUT connector	4	Couples second i-f signal to the remainder of the basic unit circuitry
METER SELECTOR switch	5	Permits monitoring of the applied r-f signal as well as six internally developed voltages and currents
Output meter	6	Indicates the relative power level of applied r-f signals as well as the levels of the internally developed voltages and currents
ZERO SET control	7	Permits zero-setting of output meter, thereby compensating for inherent instrument noise
CALIBRATE GAIN control	8	Adjusts the overall gain of the receiver and is used when standardizing the gain of the equipment
CALIBRATE MANUAL switch	9	Permits adjustment of overall receiver gain by either the MANUAL GAIN or CALIBRATE GAIN control
AVERAGE PEAK switch	10	Permits the relative measurement of either narrowband (cw or audio-modulated cw) or broadband (pulsed) r-f signals
40 MC OUTPUT connector	11	Provides access to 40-Mc third i-f signal for application to an external bolometer
MANUAL GAIN control	12	Adjusts the overall gain of the receiver (independent of CALIBRATE GAIN control)
RF INPUT connector (flange)	13	Port which couples signal under measurement to tuning unit
AFC VOLTS ADJUST control	14	Adjusts reflector voltage (when afc is actuated) to the same level as when afc is disabled (with no r-f signal applied and receiver gain standardized)
AUDIO GAIN control	15	Adjusts the gain of the audio amplifier within the receiver
AUDIO OUTPUT connector	16	Couples modulation content of applied r-f signal to an external 600-ohm headset
AFC ON switch	17	Actuates afc circuitry which automatically compensates for applied signal and/or klystron local oscillator frequency drift
KLYSTRON pilot light	18	Illuminates when beam and reflector power supplies are energized
POWER pilot light	19	Illuminates upon application of operating power
POWER ON switch	20	Couples operating power to the equipment

(Cont'd)

TABLE 2-1. OPERATING CONTROLS, INDICATORS, AND CONNECTORS (Cont'd)

Control, Indicator or Connector	Figure 2-5 Index No.	Function
RECORDER OUTPUT connector	21	Permits recording of output meter reading on an external 100-millivolt recorder
TRIGGER OUTPUT connector	22	Couples positive trigger pulses to auxiliary test equipment
VIDEO OUTPUT connector	23	Couples detected third i-f (video) signal to auxiliary test equipment
TUNING control	24	Permits tuning of the receiver to the frequency indicated on the FREQUENCY IN MEGACYCLES (FREQUENCY IN KILOMEGACYCLES) dial
FREQUENCY IN MEGACYCLES (FREQUENCY IN KILOMEGACYCLES) dial	25	Indicates the frequency to which the receiver is tuned

2-7. STARTING PROCEDURE. To prepare the Model R for operation, proceed as directed in the following steps:

a. With the POWER ON switch set to "off" and the Model R removed from the source of operating power, determine the line voltage available at the source outlet.

CAUTION

IF THE MODEL R IS TO BE OPERATED FROM A 230-VOLT LINE, REPLACE POWER LINE PROTECTIVE FUSES F101 AND F102 (TYPE 3AG, 5A, SLO-BLO FOR 115-VOLT OPERATION) WITH TYPE 3AG SLO-BLO FUSES RATED AT 2.5A @ 250V.

b. Turn each of the two captive-lock fasteners (one located at each lower corner at the rear of the equipment dust cover) one-quarter turn counterclockwise and carefully slide the equipment out of the dust cover. Set 115/230V switch S109 (located at the lower rear corner of the right side of the basic unit frame) to the position corresponding to the voltage level of the available power. Replace the equipment into the dust cover and secure the two by turning the captive-lock fasteners one-quarter turn clockwise.

CAUTION

WHEN INSTALLING OR REMOVING A TUNING UNIT, BE SURE TO ROTATE THE TUNING CONTROL TO OBTAIN A FREQUENCY IN MEGACYCLES (FREQUENCY IN KILOMEGACYCLES) DIAL INDICATION AT THE HIGH END OF THE BAND.

c. Install the desired tuning unit into the basic unit, as described in steps 1 through 6 below:

Note

Should installation of a specific tuning unit necessitate the removal of a previously installed tuning unit, follow steps 1 through 6 (both in reverse order and procedure) to remove the installed tuning unit.

1. Carefully slide the desired tuning unit approximately halfway into the basic unit.

2. Mate multipin connector P116 with the power receptacle of the 260/140-Mc preamplifier of the tuning unit.

3. Mate multipin connector P119 with the power receptacle on the tuning unit frame.

4. Mate coaxial connector P101 with the 120-Mc input receptacle of the 260/140-Mc preamplifier.

5. Mate coaxial connector P103 with the 140-Mc output receptacle of the 260/140-Mc preamplifier.

Note

Be sure to set Xtal Current Polarity switch S115 (located on the underside of the basic unit top mounting deck) to the minus (-) position.

6. Carefully slide the tuning unit into the basic unit and secure the two by rotating the four tuning unit panel captive-lock fasteners one-quarter turn clock-

wise.

d. Couple the 60-cps single-phase power source to Power Input receptacle J105 (located at the rear of the equipment) via power cable W115 and, if necessary, power cable adapter CP102.

e. Couple i-f cable W103 between the tuning unit PREAMP OUTPUT connector and the basic unit IF INPUT connector.

g. Set the front panel controls as indicated in table 2-2.

Note

Controls not mentioned in table 2-2 may be set to any position.

TABLE 2-2. PRELIMINARY CONTROL SETTINGS

Control	Setting
AFC OFF switch	OFF
METER SELECTOR switch	USE
CALIBRATE MANUAL switch	MANUAL
MANUAL GAIN control	Mid-position
ZERO SET control	Mid-position
AUDIO GAIN control	Mid-position

g. Set the POWER ON switch to ON. The POWER pilot light will become illuminated upon application of operating power; the KLYSTRON pilot light will become illuminated approximately 60 seconds later, indicating the beam and reflector power supplies are energized. Allow the Model R to warm up for at least 15 minutes before making any measurements.

h. Couple an external 600-ohm headset, if desired, to the AUDIO OUTPUT connector.

i. Couple an external 100-millivolt recorder, if desired, to the RECORDER OUTPUT connector.

j. Couple an external oscilloscope, if desired, to the VIDEO OUTPUT connector. If the r-f signal being measured is pulse-modulated, couple the TRIGGER OUTPUT connector to the oscilloscope.

k. Couple a bolometer amplifier, if desired, to the 40 MC OUTPUT connector.

2-8. MEASURING THE RELATIVE POWER LEVELS OR APPLIED R-F SIGNALS. To measure the relative power levels of applied r-f signals having the same frequency (i.e., when making antenna pattern measurements), prepare the Model R for operation as outlined in paragraph 2-7; then continue as directed in the following steps:

a. Set the METER SCALE switch to LIN.

b. Set the AVERAGE PEAK switch to AVERAGE if the applied signal is known to be narrowband. If the applied signal is broadband (pulsed) set to PEAK.

c. Set the AM FM to that position corresponding to the modulation (if any) of the signal being measured.

d. With no signal being applied to the Model R, adjust the MANUAL GAIN control to obtain an output meter pointer deflection of CAL on the linear scale.

e. Couple the r-f signal to the RF INPUT connector (flange).

f. Rotate the TUNING control throughout the band in search of the applied r-f signal. When the output meter pointer sharply deflects to an indication greater than CAL, or when the modulation content (if any) of the applied r-f signal is heard in the headset, the Model R is tuned to the frequency of the applied signal.

g. Remove the signal under measurement from the RF INPUT connector (flange).

h. Set the CALIBRATE MANUAL switch to CALIBRATE.

i. Adjust the CALIBRATE GAIN control to obtain an output meter pointer deflection of CAL.

j. Set the METER SCALE switch to 30 DB or 70 DB, as required.

k. Adjust the ZERO SET control to obtain an output meter pointer deflection at the extreme left-hand scale calibration mark. (Steps g through k standardizes the gain of the receiver by means of front-end noise.)

Note

Steps g through k must be repeated when the TUNING control is adjusted to any other frequency. Once the gain of the Model R has been standardized at any frequency, the CALIBRATE GAIN control must be left undisturbed if the output meter indications are to be of significance.

l. Recouple the applied r-f signal to the RF INPUT connector (flange). The relative power levels of r-f signals can be determined directly from the output meter readings.

Note

If long-term monitoring of the applied signal is required, set the AFC ON switch to

ON, thereby introducing automatic frequency control.

2-9. STOPPING PROCEDURE. To shut down the Model R, simply set the POWER ON switch to "off."

2-10. PACKAGING INSTRUCTIONS.

2-11. PACKAGING FOR SHORT TERM STORAGE. If the Model R is to be stored for a relatively short period, cover it with a suitable protective covering such as a sheet of plastic or paper. Put the accessories and instruction manual in a carton or bag and fasten it to the unit to prevent loss. Store the Model R in a clean and dry area where it will not be subject to extreme temperatures.

2-12. PACKAGING FOR LONG TERM STORAGE OR SHIPMENT. If the Model R is to be stored for a long period of time, or shipped, proceed as follows

a. If the original wrappings and carton have been saved, package the equipment as shown in figure 2-6.

b. If new packing materials are to be used, assemble the necessary wrappings and carton.

c. Wrap the equipment in a moisture-and vapor-proof barrier such as plastic or water-proof paper.

d. Wrap the accessories and instruction manual in a moisture- and vapor-proof barrier.

e. Place the package in a suitable carton. Fill all empty spaces in the carton with suitable packing to prevent shifting of the packages within the carton.

f. Seal and mark the carton.

g. If the storage or shipping conditions make it necessary, enclose the carton within an outer carton or wooden box.

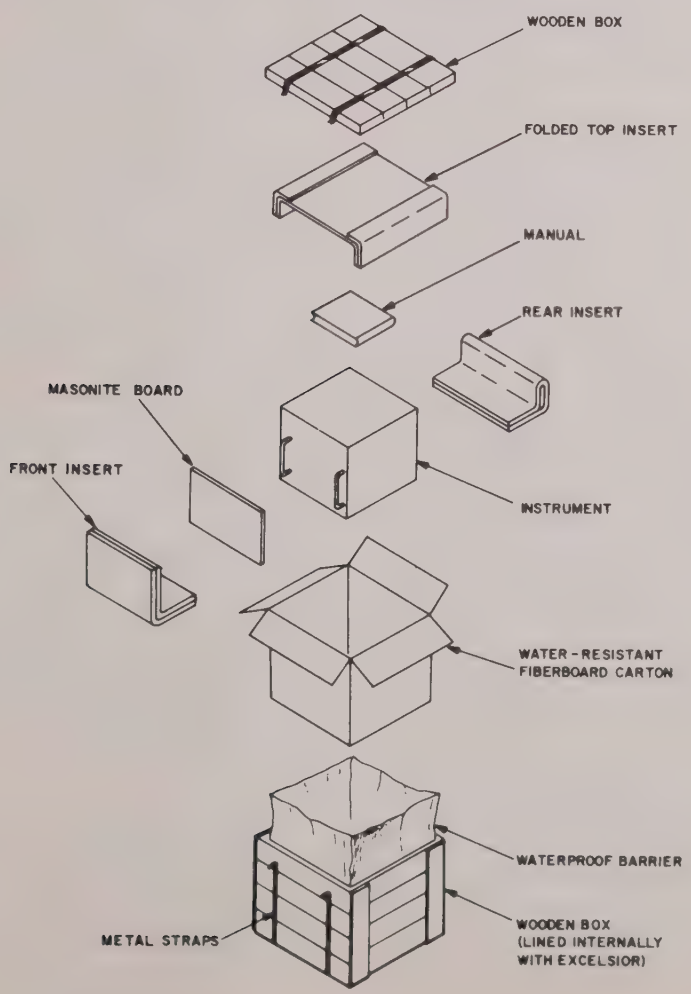


Figure 2-6. Packaging Diagram

SECTION III
THEORY OF OPERATION

3-1. GENERAL.

3-2. The Model R Microwave Receiver is a sensitive and frequency-selective test instrument providing borad frequency coverage through the use of eight interchangeable plug-in tuning units. The Model R permits comparative power level measurements of virtually every type of signal found in microwave work. In addition to the conventional microwave receiver circuitry, the Model R also contains:

a. an r-f preselector (Models RR-T, RL-T, RS-T, RM-T, and RX-T Tuning Units only) and a high-frequency first i-f to ensure adequate image and spurious response rejection;

b. automatic gain control (agc) to provide an adequate dynamic range;

c. automatic frequency control (afc) to compensate for applied signal and/or klystron local oscillator frequency drift;

d. weighting circuits for the measurement of narrowband or pulsed r-f signals;

e. a calibrated output meter having three scales; and

f. audio, video, recorder, trigger, and bolometer outputs.

3-3. SIMPLIFIED BLOCK DIAGRAM ANALYSIS (See Figure 3-1).

3-4. The r-f signal under measurement is coupled through tuning unit RF INPUT port and a band-pass filter (preselector) to a crystal diode first mixer. R-f energy obtained from a tunable klystron local oscillator is simultaneously applied to the first mixer. The desired i-f signal is obtained, due to the nonlinear characteristics of the crystal mixer, when the frequency difference between the klystron local oscillator output (fundamental or harmonic) and the applied signal is 260 Mc.

3-5. This 260-Mc first i-f signal is fed to a 260/140-Mc preamplifier, where it is amplified and mixed with the 120-Mc output of a crystal-controlled local oscillator to produce a second i-f signal at 140 Mc. This signal is amplified and applied to a 140/40-Mc amplifier, where it is further amplified and mixed with the 180-Mc output of the crystal-controlled local oscillator to yield the third and final i-f of 40 Mc.

3-6. A portion of this third i-f signal is coupled to the 40 MC OUTPUT connector, permitting application to an external bolometer amplifier; another portion is applied to an afc/fm amplifier (refer to paragraph 3-34). The remainder of the signal is divided between two detectors; one supplying the weighting and metering circuitry (refer to paragraph 3-7); the other supplying the audio amplifier and pulse amplifier (refer to paragraph 3-38) as well as the VIDEO OUTPUT connector.

3-7. The weighting circuits develop a d-c output voltage which is dependent upon both the peak level of the applied r-f signal and the type of measurement (average or peak) selected. This d-c voltage is applied to both the output meter and RECORDER OUTPUT connector through a peak-reading vtvm. The output meter provides a direct visual indication of the signal strength while the RECORDER OUTPUT connector permits this indication to be recorded.

3-8. That portion of the 40-Mc third i-f signal applied to the afc/fm amplifier is amplified and divided between two discriminators: one develops a d-c error signal (when the third i-f signal deviates from 40 Mc) which is employed when the automatic frequency control capability is required; the second discriminator recovers the information content, if any, of frequency-modulated signals for application to the audio amplifier and pulse amplifier (refer to paragraph 3-38) and the VIDEO OUTPUT connector.

3-9. The modulation content of the applied signal is coupled to both the audio amplifier and trigger pulse amplifier. The former permits monitoring of the modulation through an external 600-ohm headset plugged into the AUDIO OUTPUT connector; the latter enables triggering of auxiliary test equipment by pulses available at the TRIGGER OUTPUT connector.

3-10. DETAILED THEORY OF OPERATION, TUNING UNITS (See Figure 3-2).

3-11. The eight available tuning units are similar in principles of operation; differences exist, due to the frequency range of each tuning unit, in the types of reflex klystron tubes and first mixer diodes employed. In addition, mode switching is employed in the Models RX-T, RKU-T, and RQ-T Tuning Units to provide adequate klystron local oscillator power throughout the band. Table 3-1 is a convenient listing of the major differences between individual tuning units. The reader should refer to the individual tuning unit

schematic diagrams to note actual circuit differences. Paragraphs 3-12 through 3-26 describe the Model RX-T Tuning Unit.

3-12. PRESELECTOR Z1001. Preselector Z1001 (see figures 3-2 and 3-3) consists of two aperture-coupled cavities acting as a 9/4-wavelength resonant line (double-tuned filter) at the input of the tuning unit. The preselector is tuned to the frequency indicated on the FREQUENCY IN MEGACYCLES dial by a precision mechanical drive system (refer to paragraph 3-20) that is actuated by the TUNING control. Fine adjustment of the preselectors two tuning plungers (one for each cavity) is achieved by tape cams mounted on a rack and gear assembly, as illustrated in figure 3-3. This fine tuning capability insures precise incremental tuning at all points within the frequency range of the tuning unit.

3-13. KLYSTRON LOCAL OSCILLATOR V1001. Klystron local oscillator V1001 (see figures 3-2 and 3-4) is a reflex klystron tube operating in an external resonant cavity. The cavity is in the form of a coaxial transmission line and consists of two cylinders... one inside the other. The reflex klystron tube is seated at one end of the cavity so that the outer cylinder contacts the first interaction grid (so termed because it is closer to the cathode) ring of the tube. Spring fingers on the cavity inner cylinder contact the second interaction grid. The transmission line is completed at the other end of the cavity by a movable, non-contacting shorting plunger of special design. The position of this shorting plunger determines the physical wavelength (hence the resonant frequency) of the cavity. The reflector (reflector-to-cathode) voltage, which determines the electrical frequency of the reflex klystron (refer to paragraph 3-14), is tracked with the movement of the shorting plunger by the precision mechanical drive system. Local oscillator output power is extracted from the cavity at a single fixed point and is applied to the crystal diode first mixer (refer to paragraph 3-22).

3-14. REFLECTOR VOLTAGE TRACKING. Proper operation of the klystron local oscillator requires that the reflector (reflector-to-cathode) voltage applied to the reflex klystron be tracked with the position of the cavity shorting plunger. This proper voltage is obtained from a voltage divider network (Low Adj control R1005, TR1 control R1010, High Adj control R1009, TR2 control R1007, tracking potentiometer R1008, and mode switch S1001) connected between the beam voltage and reflector voltage supplies.

3-15. When operating in the lower portion of the band (between 7,300 and 9,660 Mc, as indicated on the FREQUENCY IN MEGACYCLES dial), mode switch S1001 is in that position which inserts the low end voltage divider (Low Adj control R1005, TR1 control R1010, and tracking potentiometer R1008) between the beam voltage and reflector voltage supplies. Since the reflector-to-cathode voltage varies linearly with frequency (see figure 3-5), Low Adj control R1005 and TR1 control R1010 are set so that the voltage appearing at the wiper arm of tracking potentiometer R1008 will cause the reflex klystron to oscillate in the desired 3-3/4-wave reflector mode.

3-16. As the operating frequency of the klystron local oscillator is increased, the magnitude of the reflector voltage required to sustain oscillation in the 3-3/4-wave reflector mode approaches the value of the reflector voltage supply; the r-f power output of the oscillator simultaneously decreases. It becomes advantageous to cause the reflex klystron to operate in the next higher (4-3/4-wave) reflector mode. This mode switching is accomplished by a cam (mounted on the shaft of R1008) which actuates mode switch S1001. The lower value of reflector voltage now required to sustain oscillation in the higher mode is obtained from the voltage divider consisting of High Adj control R1009, tracking potentiometer R1008, and TR2 control R1007. The 4-3/4-wave reflector mode is used throughout the remainder of the tuning unit range (9,660 to 11,260 Mc, as indicated by the FREQUENCY IN MEGACYCLES dial).

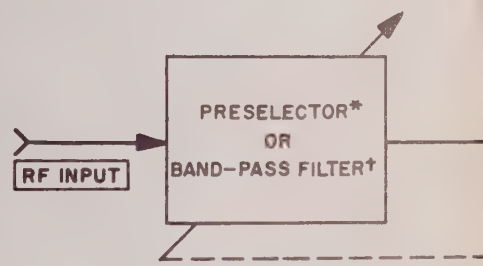
3-17. PROTECTIVE DIODE V1002. Protective diode V1002 is connected between the cathode and reflector of V1001 and serves to prevent possible damage to the reflex klystron tube should the reflector become positive with respect to the cathode. Reference to figure 5-5 shows that the phasing of the diode is such that any circuit disturbance which would cause the reflector to become positive (with respect to the cathode) will cause the protective diode to conduct. Should such a circumstance arise, the maximum positive voltage appearing at the reflector would be limited to the small drop across the conducting diode.

3-18. BIAS ADJUST CONTROL R1001. The r-f power developed by klystron local oscillator V1001 is a function of the beam current. Normal operation of the reflex klystron requires that the tube draws a beam current of 20 ma. The control grid bias voltage necessary to obtain this beam current varies from tube to tube, but usually is within the range of +3 to +10 volts (with respect to beam voltage). Bias Adj control R1001, in conjunction with a voltage divider network connected to the beam voltage supply, is provided to adjust the control grid voltage to that value which causes the tube to draw 20 ma.

3-19. CURRENT ADJUST CONTROLS R1018 AND R1020. Low I Adj control R1018 and High I Adj control R1020, in conjunction with mode switch S1001 and dropping resistor R1019, are employed to maintain the reflector voltage supply current drain at a constant level of 7 ma, thereby enabling the afc amplifier (refer to paragraph 3-60) to operate at its optimum point. Maintaining the reflector voltage supply drain at a uniform level permits the afc amplifier to perform independently of the tuning unit installed.

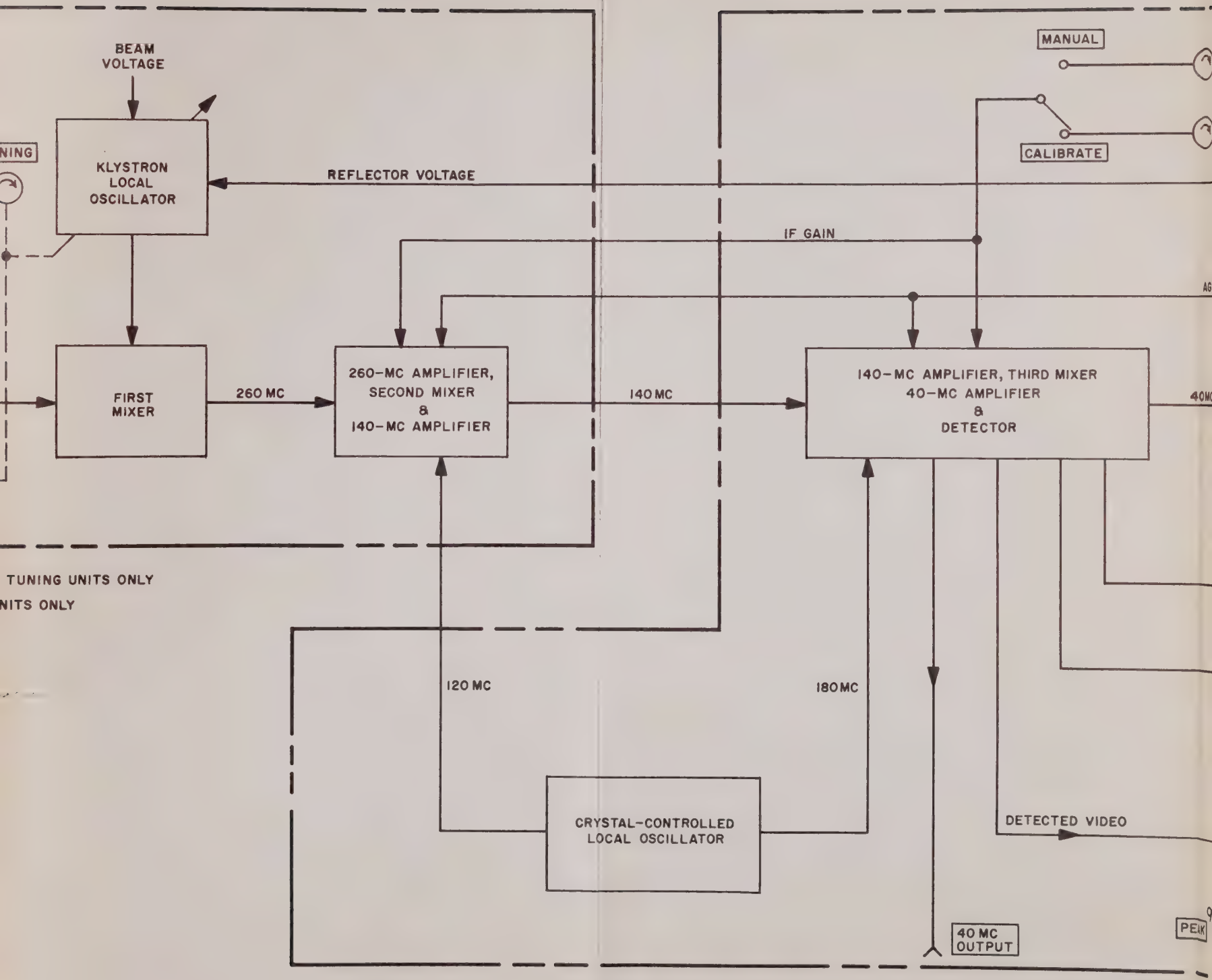
PLUG-IN TUNING UNIT

TUNING UNIT	FREQUENCY RANGE
MODEL RR-T	400 TO 1,000
MODEL RL-T	550 TO 2,040
MODEL RS-T	1,900 TO 4,340
MODEL RM-T	4,200 TO 7,740
MODEL RX-T	7,300 TO 11,260
MODEL RKS-T	9,500 TO 15,600
MODEL RKU-T	14,700 TO 22,000
MODEL RQ-T	20,300 TO 46,700



* MODELS RR-T, RL-T, RS-T, RM-T, AND RX-T

† MODELS RKS-T, RKU-T, AND RQ-T TUNING U


BEAM VOLTAGE
KLYSTRON LOCAL OSCILLATOR
REFLECTOR VOLTAGE
MANUAL
CALIBRATE
IF GAIN
FIRST MIXER
260 MC
260-MC AMPLIFIER, SECOND MIXER & 140-MC AMPLIFIER
140 MC
140-MC AMPLIFIER, THIRD MIXER 40-MC AMPLIFIER & DETECTOR
TUNING UNITS ONLY
NITS ONLY
120 MC
180 MC
CRYSTAL-CONTROLLED LOCAL OSCILLATOR
DETECTED VIDEO
40 MC OUTPUT
PEAK

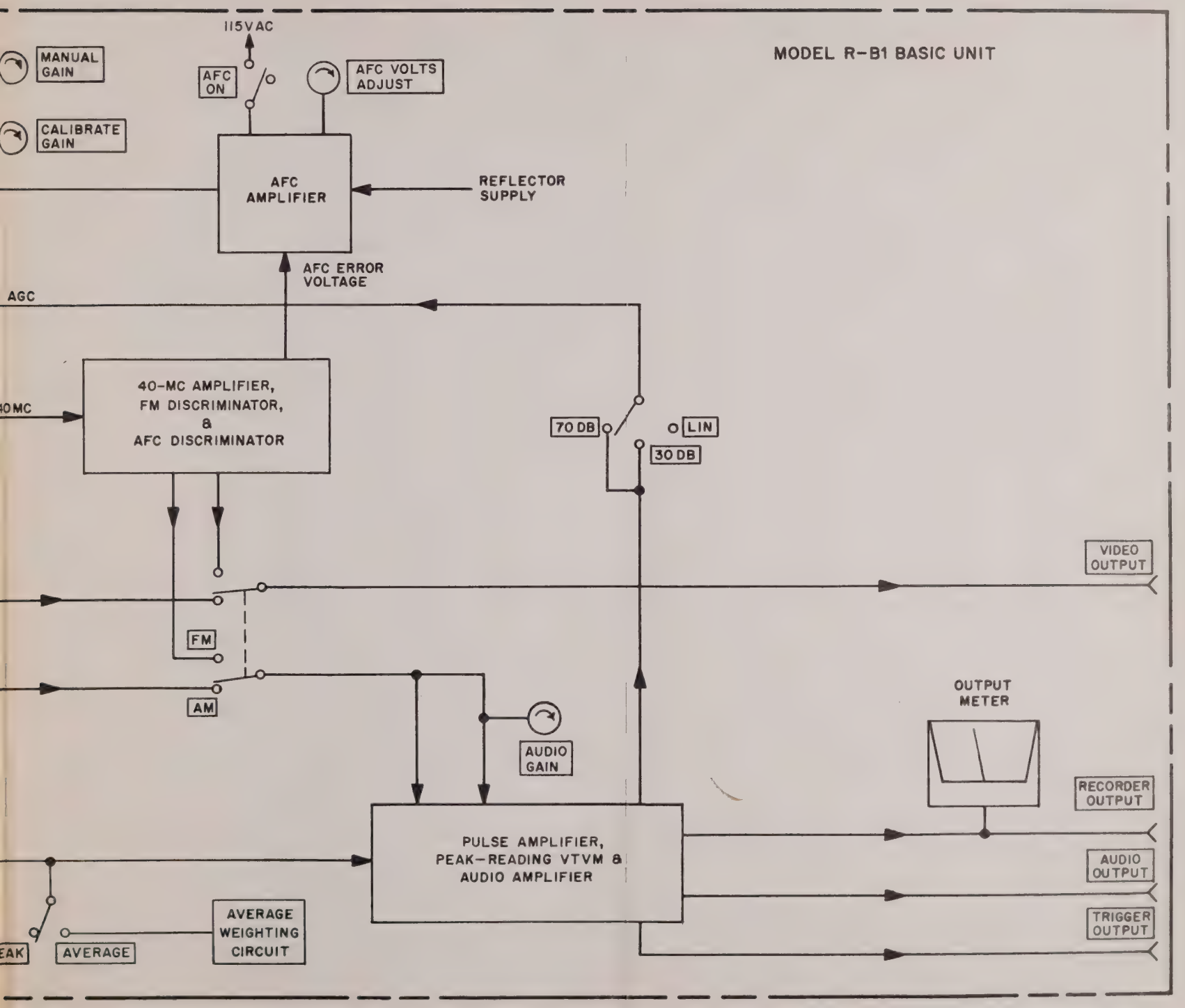
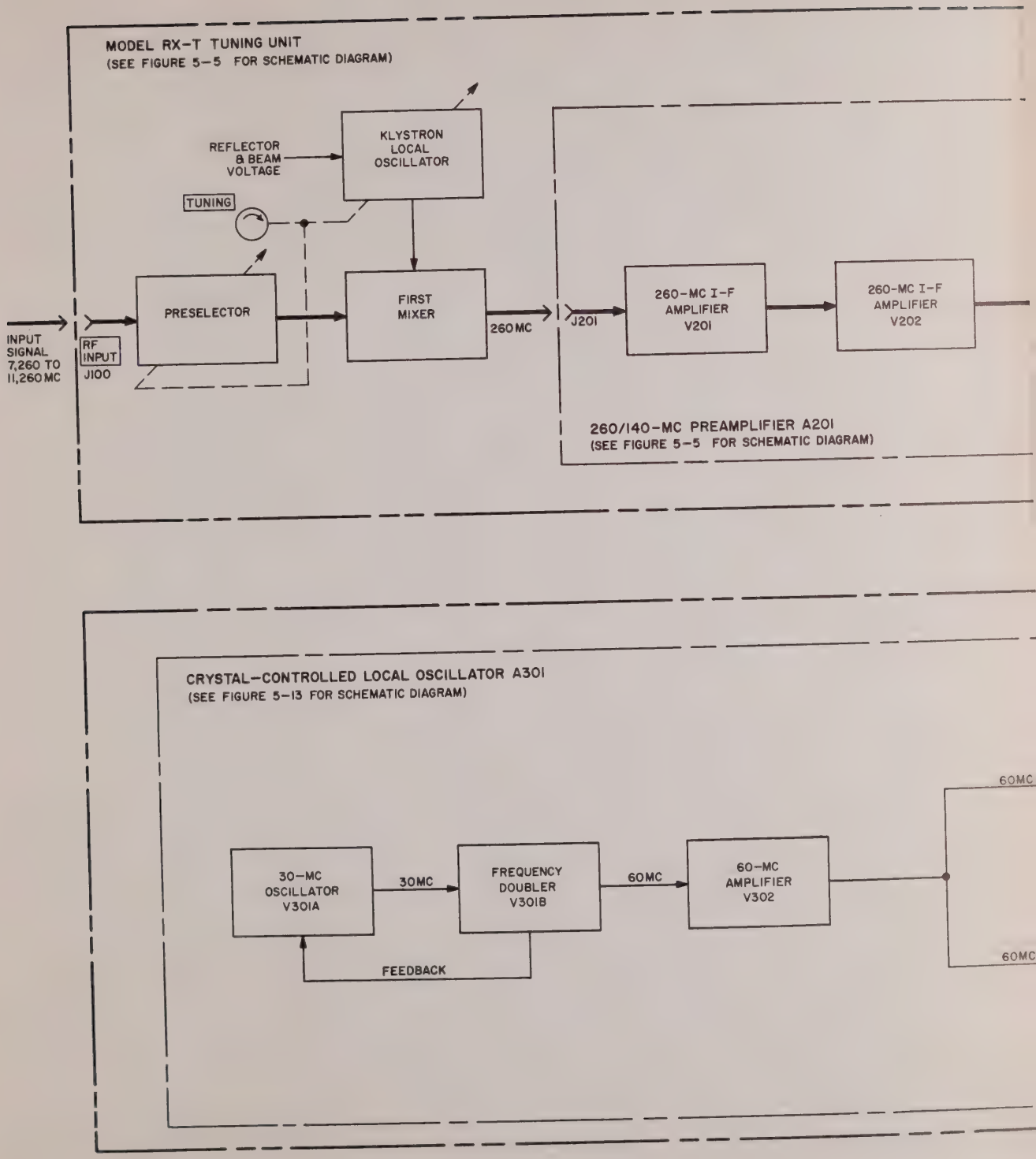
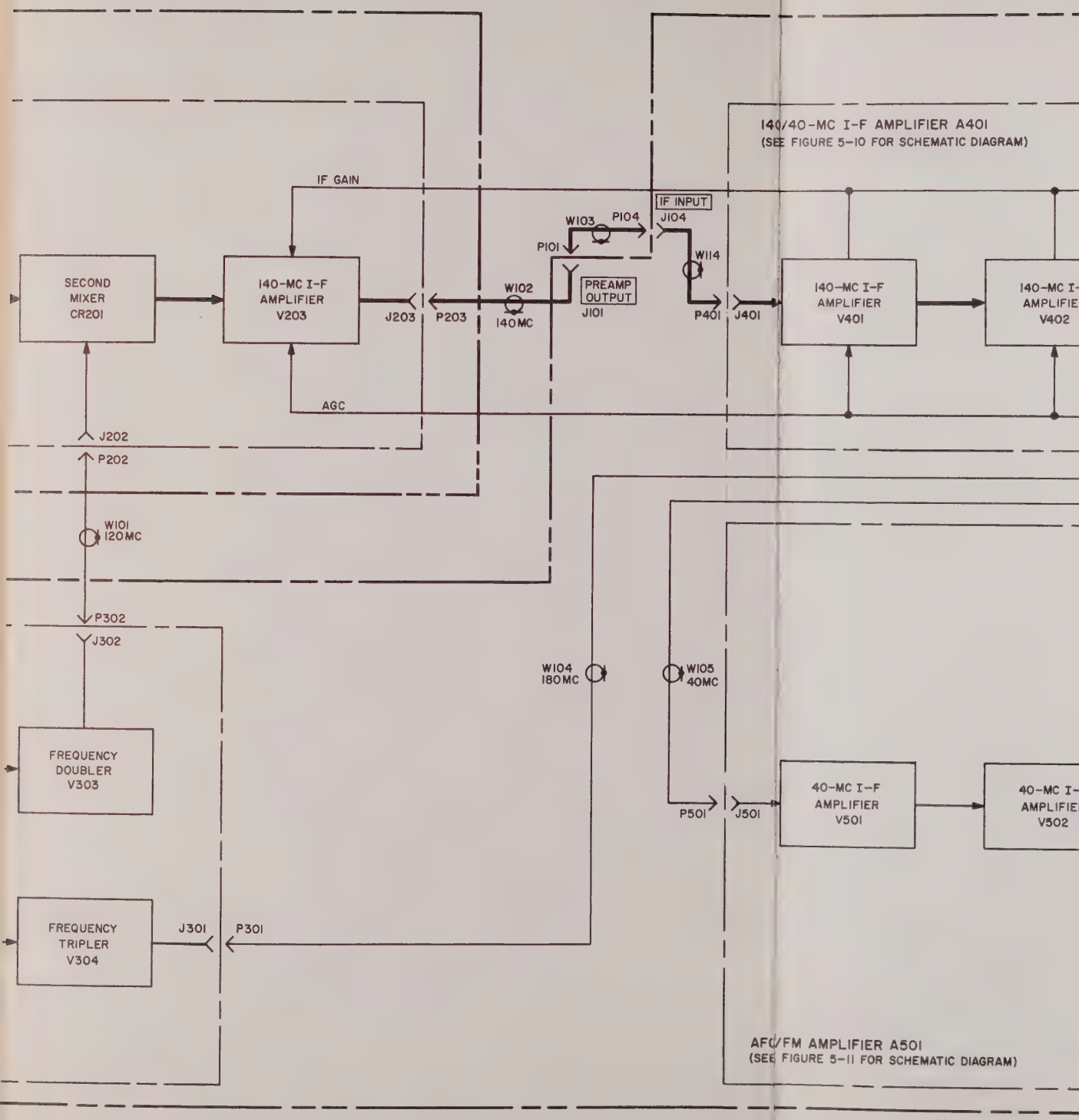
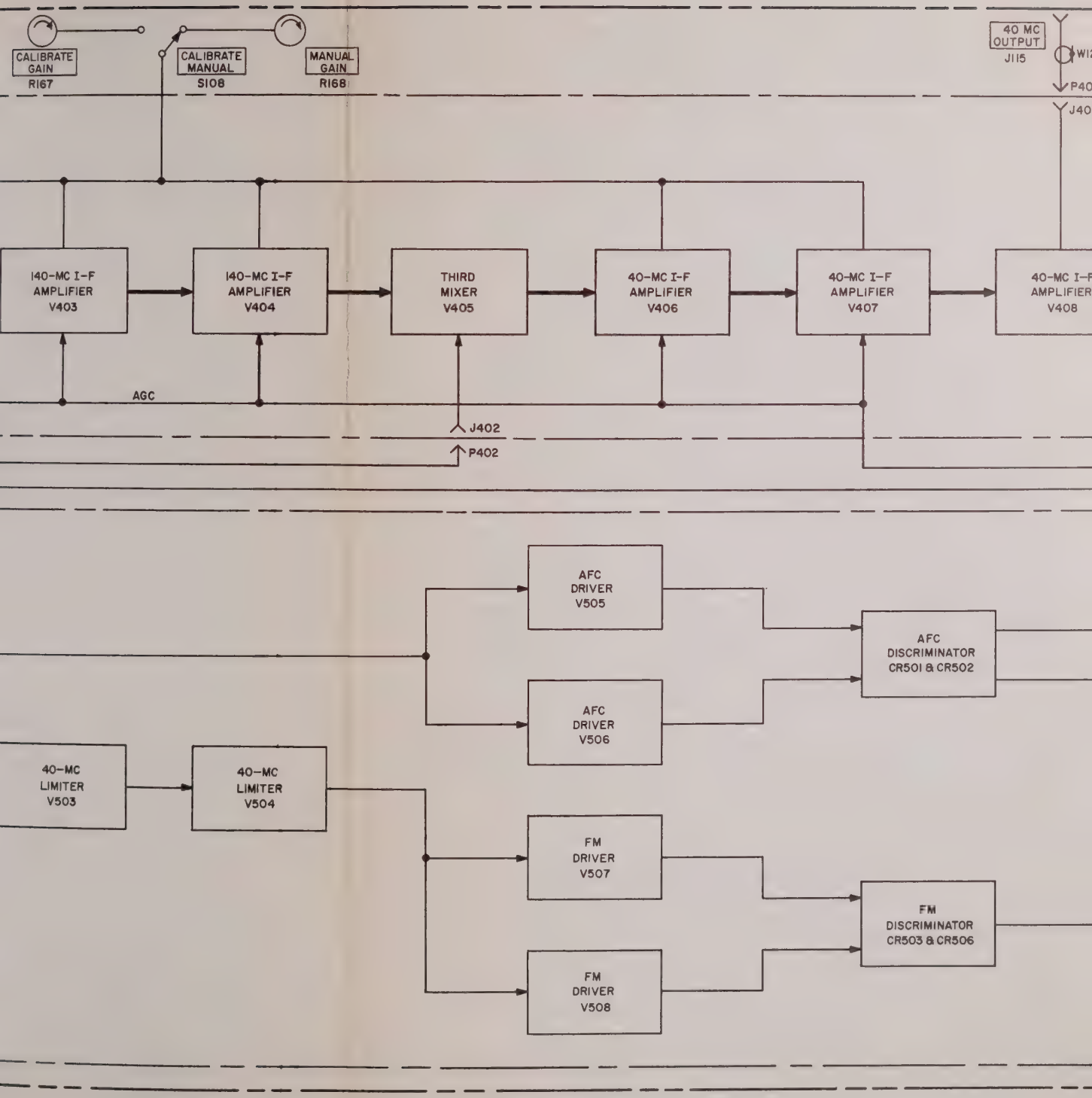
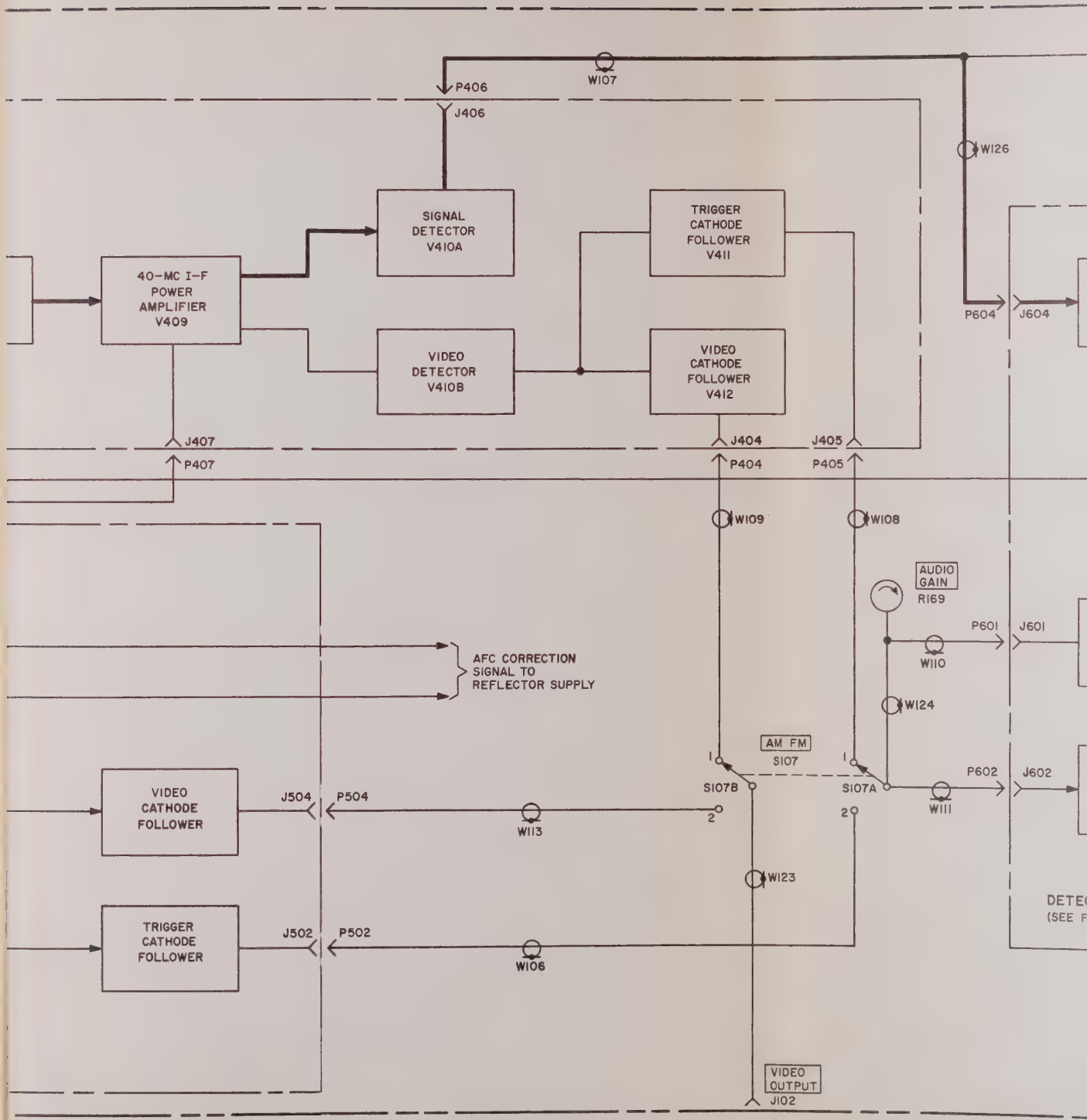


Figure 3-1. Model R Microwave Receiver, Simplified Block Diagram


MODEL RX-T TUNING UNIT
(SEE FIGURE 5-5 FOR SCHEMATIC DIAGRAM)
REFLECTOR & BEAM VOLTAGE
KLYSTRON LOCAL OSCILLATOR
TUNING
PRESELECTOR
FIRST MIXER
260 MC
J201
260-MC I-F AMPLIFIER V201
260-MC I-F AMPLIFIER V202
INPUT SIGNAL 7,260 TO 11,260 MC
RF INPUT
J100
260/140-MC PREAMPLIFIER A201
(SEE FIGURE 5-5 FOR SCHEMATIC DIAGRAM)
CRYSTAL-CONTROLLED LOCAL OSCILLATOR A301
(SEE FIGURE 5-13 FOR SCHEMATIC DIAGRAM)
30-MC OSCILLATOR V301A
30MC
FREQUENCY DOUBLER V301B
60MC
60-MC AMPLIFIER V302
60MC
60MC
FEEDBACK


140/40-MC I-F AMPLIFIER A401
(SEE FIGURE 5-10 FOR SCHEMATIC DIAGRAM)
IF GAIN
IF INPUT
J104
W103
P104
P101
W114
SECOND MIXER CR201
140-MC I-F AMPLIFIER V203
J203
P203
W102
140MC
PREAMP OUTPUT
J101
P401
J401
140-MC I-F AMPLIFIER V401
140-MC I-F AMPLIFIER V402
AGC
J202
P202
W101
120MC
P302
J302
W104
180MC
W105
40MC
FREQUENCY DOUBLER V303
P501
J501
40-MC I-F AMPLIFIER V501
40-MC I-F AMPLIFIER V502
FREQUENCY TRIPLER V304
J301
P301
AFC/FM AMPLIFIER A501
(SEE FIGURE 5-11 FOR SCHEMATIC DIAGRAM)


CALIBRATE GAIN R167
CALIBRATE MANUAL S108
MANUAL GAIN R168
40 MC OUTPUT J115
P40
J40
140-MC I-F AMPLIFIER V403
140-MC I-F AMPLIFIER V404
THIRD MIXER V405
40-MC I-F AMPLIFIER V406
40-MC I-F AMPLIFIER V407
40-MC I-F AMPLIFIER V408
AGC
J402
P402
AFC DRIVER V505
AFC DRIVER V506
AFC DISCRIMINATOR CR501 & CR502
40-MC LIMITER V503
40-MC LIMITER V504
FM DRIVER V507
FM DRIVER V508
FM DISCRIMINATOR CR503 & CR506


W107
P406
J406
W126
SIGNAL DETECTOR V410A
TRIGGER CATHODE FOLLOWER V411
40-MC I-F POWER AMPLIFIER V409
VIDEO DETECTOR V410B
VIDEO CATHODE FOLLOWER V412
P604
J604
J407
J404
J405
P407
P404
P405
W109
W108
AUDIO GAIN R169
P601
J601
W110
AFC CORRECTION SIGNAL TO REFLECTOR SUPPLY
W124
AM FM S107
S107B
S107A
P602
J602
W111
VIDEO CATHODE FOLLOWER
J504
P504
W113
W123
TRIGGER CATHODE FOLLOWER
J502
P502
W106
VIDEO OUTPUT J102

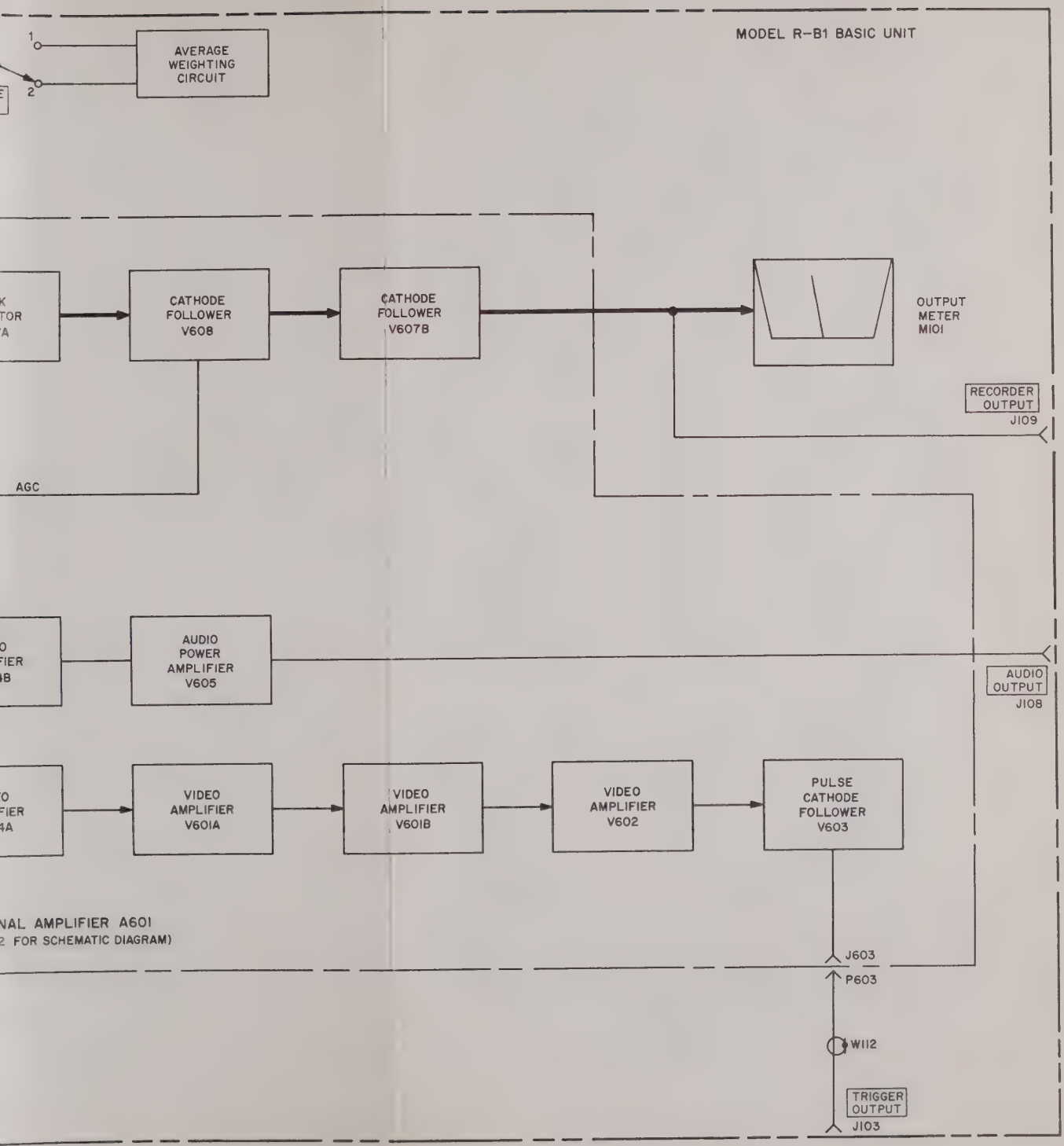


Figure 3-2. Model R Microwave Receiver, Detailed Block Diagram (Less Power Supplies)

TABLE 3-1. TUNING UNIT DIFFERENCE DATA

Characteristic	Tuning Unit							
	Model RR-T	Model RL-T	Model RS-T	Model RM-T	Model RX-T	Model RKS-T	Model RKU-T	Model RQ-T
Input signal frequency range (Mc)	400 to 1,000	950 to 2,040	1,900 to 4,340	4,200 to 7,740	7,300 to 11,260	9,500 to 15,600	14,700 to 22,000	20, 300 to 46,700
Klystron local oscillator frequency[1] range (Mc)	660 to 1,260 (260 Mc above dial)	1, 210 to 2, 300 (260 Mc above dial)	2, 160 to 4, 600 (260 Mc above dial)	4,460 to 8,000 (260 Mc above dial)	7,040 to 11,000 (260 Mc below dial)	4,620 to 7, 670	7, 220 to 10, 870	10, 020 to 15, 380
Klystron local oscillator harmonic employed	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental	First harmonic	First harmonic	First and second harmonic
Harmonic frequency range (Mc)	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	9,240 to 15,340 (260 Mc below dial)	14,440 to 21,740 (260 Mc below dial)	First - 20,040 to 30,960 (260 Mc below dial); Second - 30,060 to 46,440 (260 Mc below dial)
Reflector mode switching	Not required	Not required	Not required	Not required	Required	Not required	Required	Required
Reflector mode(s) employed	1-3/4-wave across band	2-3/4-wave across band	2-3/4-wave across band	2-3/4-wave across band	3-3/4-wave from 7, 040 to 9, 400 Mc; 4-3/4-wave from 9, 400 to 11, 000 Mc	2-3/4-wave across band	3-3/4-wave from 7, 220 to 9, 400 Mc; 4-3/4-wave from 9, 400 to 10, 870 Mc	3-3/4-wave from 10, 020 to 12, 750 Mc; 4-3/4-wave from 12,750 to 15, 380 Mc
Reflex klystron tube type	ZV1010/7505	ZV1010/7505	ZV1009/7049	5721	5721	5721	5721	V-39C
External resonant cavity mode(λ)	1/4	1/4	3/4	3/4	3/4	3/4	3/4	3/4
Beam voltage[2] (volts)	-325	-325	-325	-1250	-1250	-1250	-1250	-700
Beam current (ma)	28	28	28	20	20	20	20	28 to 32
Control grid voltage[3, 4] (volts)	+3 to +10	+3 to +10	+3 to +10	+3 to +10	+3 to +10	+3 to +10	+3 to +10	- - - - - - - - -
Reflector voltage[2] (volts)	-925	-925	-925	-1850	-1850	-1850	-1850	-1300
Preselector cavity mode (λ)	1/4	1/4	1/4	3/4	9/4	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -

1. Fundamental frequency.
2. With respect to ground.
3. With respect to beam voltage.
4. Adjusted to obtain required beam current.

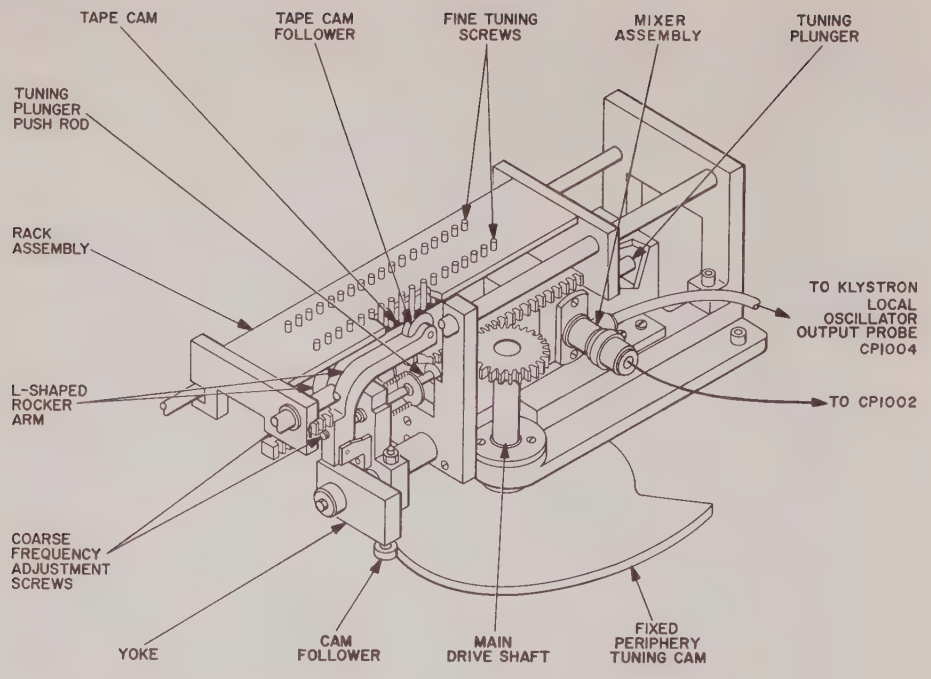


Figure 3-3. Preselector Assembly Z1001, Electro-mechanical Diagram

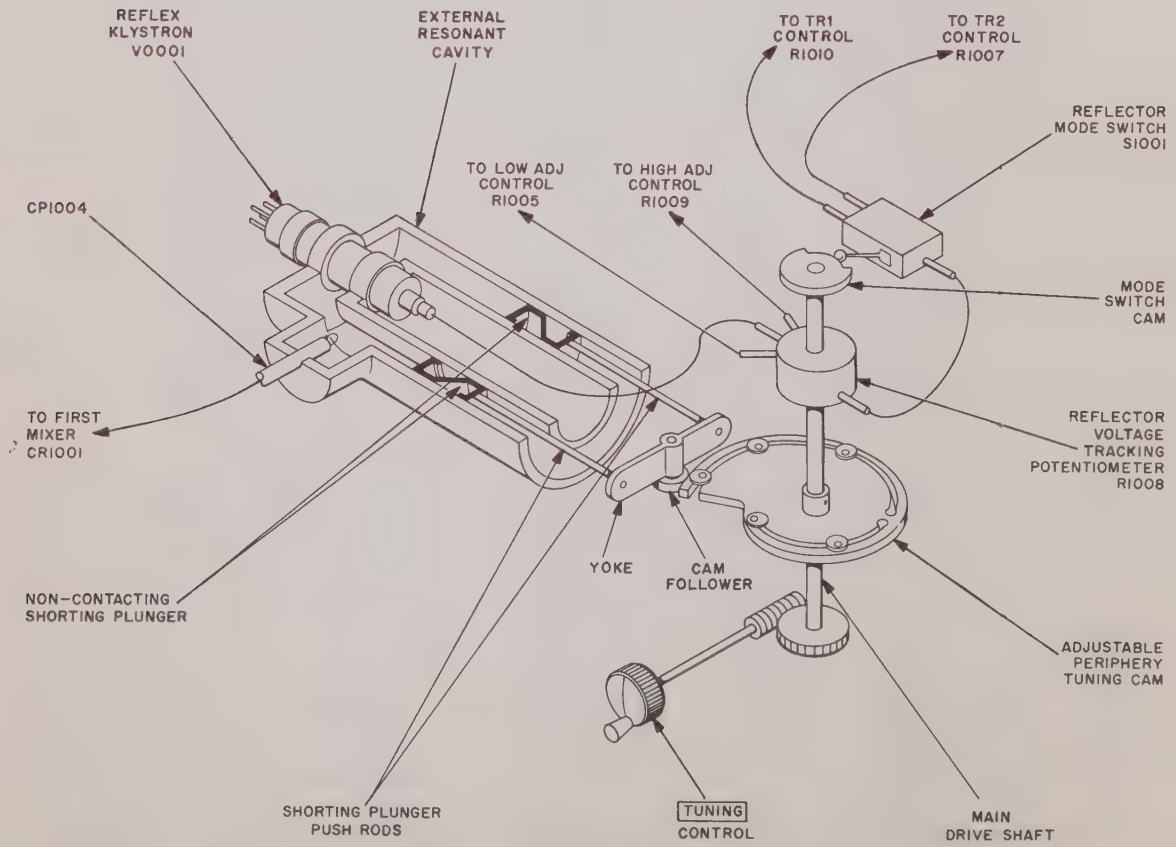


Figure 3-4. Klystron Local Oscillator Assembly A1001, Simplified Electro-mechancial Diagram

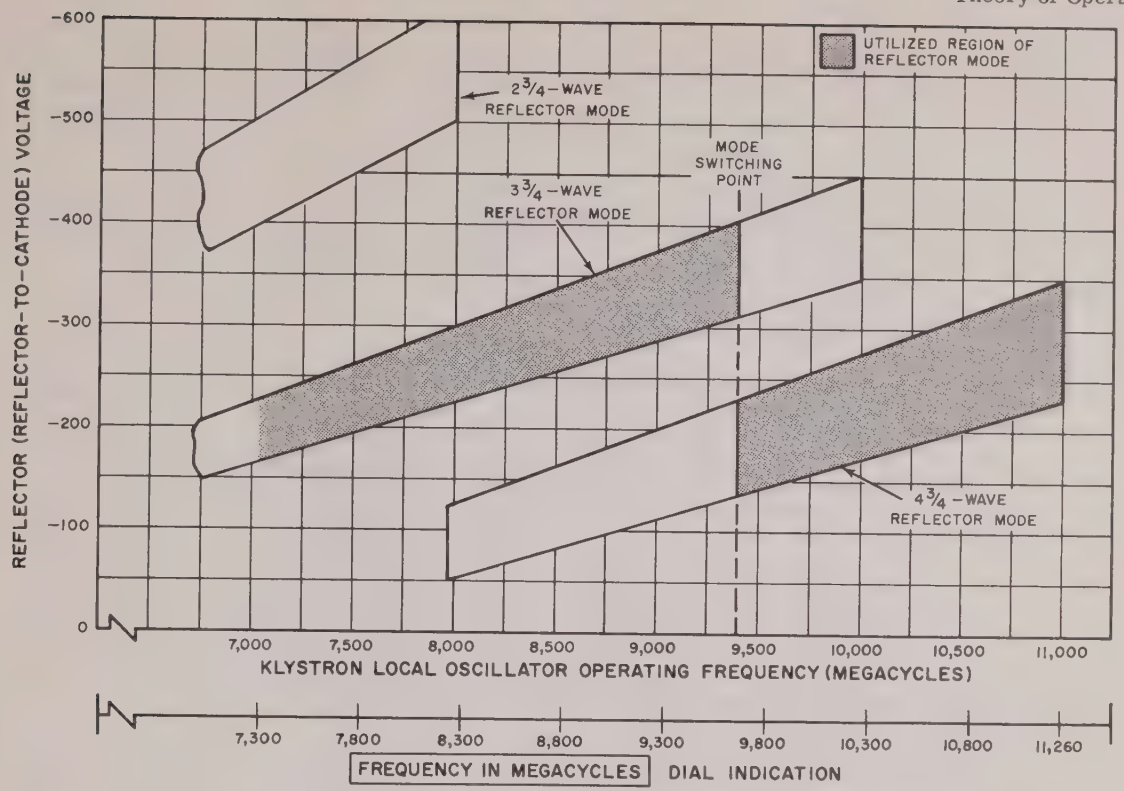


Figure 3-5. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V1001

3-20. PRECISION MECHANICAL DRIVE SYSTEM Simultaneous (Unidial®) tracking of the preselector tuning plungers, klystron local oscillator reflector voltage and external resonant cavity non-contacting shorting plunger position, and the FREQUENCY IN MEGACYCLES dial is accomplished by a precision mechanical drive system. This drive system, which consists of a main drive shaft, two tuning cams (one of the adjustable-periphery* type), and gear assemblies, converts the rotational motion imparted by the operator to the TUNING control into the rotational motion required to drive the FREQUENCY IN MEGACYCLES dial and reflector voltage tracking potentiometer as well as the translational motion required to drive the preselector tuning plungers and the klystron local oscillator cavity shorting plunger.

3-21. The rotational motion coupled to the fixed periphery tuning cam causes its cam follower to drive a spring-loaded preselector drive yoke. The yoke adjusts the positions of the two tuning plungers within the preselector, thereby determining the physical wavelength of each cavity. In a manner similar to that for the preselector, the adjustable periphery tuning cam causes its cam follower to drive a spring-loaded shorting plunger drive yoke. This yoke adjusts the position of the non-contacting shorting plunger within the oscillator cavity.

* U. S. Patent No. 2, 824, 466.

3-22. FIRST MIXER CR1001. That portion of the applied r-f signal falling within the pass-band of the preselector is applied to the crystal diode first mixer simultaneously with the r-f output of the klystron local oscillator. Since the frequency difference between these two signals is always 260 Mc, the non-linear characteristics of the diode develops the sum and difference frequencies of these two signals as well as the sum and difference frequencies of their harmonics. The 260-Mc difference frequency signal (first i-f) is then applied to the 260/140-Mc preamplifier (refer to paragraph 3-23).

3-23. 260/140-MC PREAMPLIFIER. The 260/140-Mc three-stage preamplifier (see figure 5-5) is a combination two-stage, fixed-tuned, grounded-grid 260-Mc amplifier followed by a second mixer and 140-Mc pentode amplifier. The preamplifier generates the second i-f signal by heterodyning the 260-Mc first i-f signal with the 120-Mc output of the crystal-controlled local oscillator. (See figures 5-9 and 5-10 to note the circuit differences between the three-stage and two-stage preamplifiers.)

3-24. The 260-Mc first i-f signal obtained from first mixer CR1001 is coupled through J201 and applied simultaneously to a low-pass filter and a broadly-tuned impedance matching network. The d-c component of this signal is bypassed through the low-pass filter

(L201, C201, L202, C202, and C228), coupled through pin B of multipin connector J204 and METER SELECTOR switch S104 to ground, thereby completing the first mixer d-c current return path.

3-25. The 260-Mc signal is coupled through the impedance matching network and applied to the cathode of grounded-grid amplifier V201. The output of V201 is transformer coupled to V202 for another stage of amplification. These two amplifier stages offer selectivity to the applied signal and simultaneously raises its level to a value suitable for reconversion. The output of V202 is coupled to crystal diode second mixer CR201 simultaneously with the 120-Mc output of the crystal-controlled local oscillator (refer to paragraph 3-43). The heterodyning action of the crystal diode results in the generation of the 140-Mc second i-f signal, which is amplified by V203 and applied to the 140/40-Mc i-f amplifier (refer to paragraph 3-29).

3-26. The overall gain of the preamplifier is determined by both the d-c voltage applied between the control grid and ground of V203 and the resistance in the cathode circuit of this tube. The grid to ground (agc) voltage is obtained from cathode follower V608 and coupled to V203 only when METER SCALE switch S106 is set to 30 DB or 70 DB. When S106 is set to LIN, the agc signal is open-circuited and the control grid of V203 is returned to d-c ground. The cathode circuit resistance is controlled by the position of CALIBRATE MANUAL switch S108 and the setting of CALIBRATE GAIN control R168 or MANUAL GAIN control R167.

3-27. DETAILED THEORY OF OPERATION, MODEL R-B1 BASIC UNIT (See Figure 3-2).

3-28. The Model R-B1 Basic Unit is the control and monitoring portion of the Model R, and contains the 140/40-Mc i-f amplifier, afc/fm amplifier, crystal-controlled local oscillator, and detected signal amplifier, as well as the power supplies necessary to energize the equipment. Paragraphs 3-29 through 3-62 describe the basic unit.

3-29. 140/40-MC I-F AMPLIFIER. The 140/40-Mc i-f amplifier (see figure 5-11) consists of a conventional four-stage pentode amplifier chain tuned to 140 Mc, a third mixer and four-stage 40-Mc amplifier followed by two detectors. The i-f amplifier generates the third i-f signal, which is processed to supply the afc/fm amplifier, detected signal amplifier, and both the VIDEO OUTPUT and 40 MC OUTPUT connectors.

3-30. The 140-Mc output of the tuning unit preamplifier is coupled through J401 and applied to the control grid of V401, the first of four identical amplifier stages. After undergoing four stages of amplification, the 140-Mc signal is applied to the control grid of third mixer V405. The 180-Mc output of the crystal-controlled local oscillator is simultaneously coupled to the control grid, and since the tube is operating in its non-linear region, the 40-Mc beat frequency is obtained at the plate. This third and final i-f signal is coupled through a three-stage pentode amplifier (V406, V407, and V408). A portion of the amplified signal is tapped from L447 and coupled through J403 to the 40 MC OUTPUT connector; the remainder of the signal is applied to power amplifier V409.

3-31. Part of the output of V409 is tapped from L451 and coupled through J407 to the afc/fm amplifier (refer to paragraph 3-34); the remainder of the signal is divided between signal detector V410A and am video detector V410B. Since the cathode of V410A is at d-c ground, only the negative half-cycle of the 40-Mc signal will cause the diode to conduct. The output signal is coupled through an i-f filter (C482 and L457) and J406 and applied to peak detector V607A (refer to paragraph 3-38). This signal is employed to drive the peak-reading vtvm. The positive half-cycle of the third i-f signal is coupled through am video detector V410B (whose plate is at d-c ground) and an i-f filter and video peaking network (C483, L456, and R435) to the control grids of V411 and V412 (see figure 3-6).

3-32. The output of am video cathode follower V412 is coupled to VIDEO OUTPUT connector J102 (when AM FM switch S107 is set to AM) where the video content of the signal can be observed through the use of an external oscilloscope. The output of am trigger cathode follower V411 is coupled through AM FM switch S107 to both the audio amplifier and video amplifiers of the detected signal amplifier (refer to paragraph 3-38).

3-33. The overall gain of the 140/40-Mc i-f amplifier is controlled in the same manner as is the 260/140-Mc preamplifier. The agc voltage, which is applied to the control grid of V203 when S106 is set to either 30 DB or 70 DB, is also applied to the control grids of V401 through V404, V406, and V407. The cathode circuit resistor (R167 or R168) is common to these six stages as well as to V203.

3-34. AFC/FM AMPLIFIER. The afc/fm amplifier (see figure 5-12) contains the circuitry which develops a d-c error voltage when the third i-f signal deviates (due to a change in frequency of the applied r-f signal and/or the output of the klystron local oscillator) from 40 Mc. This assembly also recovers the information content of frequency-modulated signals.

3-35. That sample of the nominally 40-Mc third i-f signal tapped from L451 of the 140/40-Mc i-f amplifier is coupled to the control grid of V501, a conventional 40-Mc pentode amplifier. After another stage of amplification, the signal is divided between parallel-operated afc driver amplifiers V505 and V506 and series limiters V503 and V504.

3-36. The plate tank circuits of V505 and V506 are tuned to 38.25 and 41.75 Mc, respectively. The outputs of these stages are applied to afc discriminator diodes CR501 and CR502. The difference voltage between the filtered discriminator output is coupled through pins 7 and 8 of multipin connector J503 to the afc amplifier of the reflector voltage supply (refer to paragraph 3-60). The magnitude and polarity of the discriminator output is dependent upon the actual frequency of the third i-f signal, as follows:

a. When the third i-f signal is exactly 40 Mc, the outputs of both V505 and V506 are of the same magnitude. The filtered output of both diodes are therefore equal (both in magnitude and polarity). The difference voltage for this condition is zero.

b. When the third i-f signal is slightly greater than 40 Mc, the output of V506 is greater than that of V505. The filtered output of CR501 will be more positive than that of CR502. This condition results in a d-c error voltage that is more positive at pin 8 of J503 than at pin 7.

c. Conversely, when the third i-f signal is slightly less than 40 Mc, the filtered output of CR502 will be more positive than that of CR501, resulting in the d-c error voltage at pin 7 being positive with respect to pin 8.

3-37. Series limiters V503 and V504 clip the applied third i-f signal, thereby eliminating much of its noise content, and apply the signal to the control grids of parallel-operated fm drivers V507 and V508. These drivers, which operate in a manner similar to V505 and V506, are employed to convert any frequency-modulated signal to a varying amplitude signal. The output of the fm discriminator (CR503, CR504, and associated filtering components) is then coupled to the control grids of fm video cathode follower V509A and fm trigger cathode follower V509B.

3-38. DETECTED SIGNAL AMPLIFIER. The detected signal amplifier (see figure 5-13) contains a peak-reading vtvm, video amplifier, and audio amplifier. These circuits are employed to develop the trigger, audio, and meter output signals.

3-39. The peak reading vtvm (see figure 3-7) consists of AVERAGE PEAK switch S105 and its associated circuitry, peak detector V607A, cathode followers V608 and V607B, SCALE SELECTOR switch S106 and its associated circuitry, and output meter M101. When AVERAGE PEAK switch S105 is set to PEAK, the filtered negative output of V410A, appearing across R623, is applied to the cathode of peak detector V607A, a pentode connected to function as a diode. This negative signal causes the diode to conduct, charging C606 to the peak level of the detected signal. This peak level is retained, due to the long time constant of the output network (C606, R630, C612, R629, the input impedance of cathode follower V608, and the back resistance of peak detector V607A). When AVERAGE PEAK switch S105 is set to AVERAGE, C120 is connected in parallel with R623. This parallel network in the cathode circuit of V607A has a relatively long time constant and produces an output that is the average value of the applied signal.

3-40. The output of the peak retaining network is applied to cathode follower V608, which produces an output in phase with its input. The output (agc) of V608 is applied to the control grids of the i-f amplifier stages and to cathode follower V407B, which drives the output meter.

3-41. The video amplifier section consists of pulse amplifiers V604A, V601A, V601B, and V602 and pulse cathode follower V603. Video information coupled through section A of AM FM switch S107 is amplified and shaped by the pulse amplifiers and applied to pulse cathode follower V603. V603 provides a low impedance output for the signal available at TRIGGER OUTPUT connector J103.

3-42. The audio amplifier consists of audio amplifier V604B and audio power amplifier V605. The modulation content of the video information is applied to the control grid of V604B through AUDIO GAIN control R169. The amplified signal is coupled through power amplifier V605 to the AUDIO OUTPUT connector

3-43. CRYSTAL-CONTROLLED LOCAL OSCILLATOR. The signals employed by the second and third mixers to generate the 140 and 40-Mc i-f signals, respectively, are obtained from the crystal-controlled oscillator (see figure 5-14). This assembly consists of a 30-Mc oscillator and frequency doubler, a 60-Mc amplifier, and a frequency doubler and tripler.

3-44. V301 serves the dual function of oscillator and frequency doubler. Oscillation is sustained through positive feedback from the cathode of V301B to the grid of V301A. The 60-Mc output of V301B is coupled through V302 to the control grids of frequency doubler V303 and frequency tripler V304. These tubes, operating class C, have their plate tank circuits tuned to harmonics of the applied 60 Mc signal. The 120 Mc output of V303 is coupled to the second mixer within the 260/140-Mc preamplifier and the 180 Mc output of V304 is applied to the third mixer within the 140/40-Mc i-f amplifier.

3-45. POWER DISTRIBUTION. The various voltages required to energize the circuits within the Model R are obtained from self-contained power supplies (see figures 3-8 and 5-15). These supplies, physically located on the lower mounting deck of the basic unit, are described in paragraphs 3-46 through 3-62.

3-46. Line Voltage Switching Circuitry. The facility of functioning from either a 115 or 230 volt power source is achieved by 115/230V switch S109. Each primary winding of power transformers T101,

T102, and T103 are designed for excitation by a 115 volt source. S109 serves to connect both windings of each transformer in parallel (when the line power is 115 volts) or in series (when the line power is 230 volts).

3-46. Time Delay Circuitry. Delay relay K101 and holding relay K103 delays the application of primary power to the beam voltage supply for approximately 60 seconds. During this interval filament power is applied to the reflex klystron tube to bring the cathode to operating temperature. When proper cathode temperature is attained, the beam voltage supply is energized, and power is supplied to the cathode. This delay feature prevents possible destruction of the klystron cathode structure should power be applied while the tube is unheated.

3-47. Beam Voltage Supply. The beam voltage supply is a conventional degenerative voltage regulator consisting of series-connected full-wave rectifiers V101 and V102, series regulator V103, control amplifier V104, and voltage reference V105. The tuning unit installed in the basic unit determines the output level of the beam voltage supply by coupling line power, through appropriate interlocks, to the primary taps of T101. Thus, when the Model RR-T, RL-T, or RS-T Tuning Unit is employed, the beam voltage supply develops -325 volts; when the Model RM-T, RX-T, RKS-T, or RKU-T Tuning Unit is installed, the output level is -1250 volts; and when the Model RQ-T Tuning Unit is used, the supply develops -700 volts. By changing the effective turns ratio of T101, this single supply obviates the necessity of three different supplies.

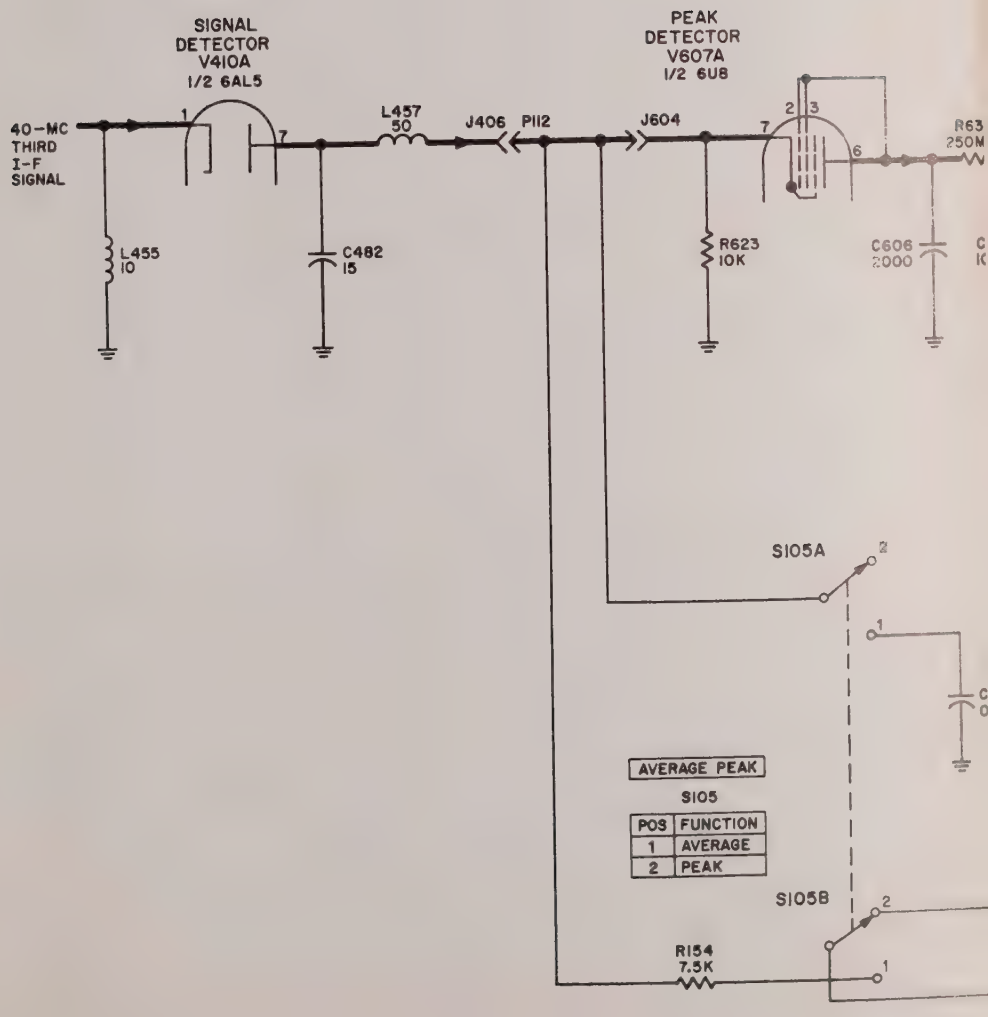
3-58. The output level of the beam voltage supply is determined by Anode V Adj control R109, which sets the bias of control amplifier V104. Any change in output voltage caused by fluctuation of line voltage and/or load current changes the bias voltage of V104. This change in bias voltage causes a corresponding change in plate voltage, which alters the bias (and plate resistance) of series regulator V103. This degenerative action maintains the beam voltage supply output at a constant level.

3-59. -600 Volt Supply. The -600 volt supply, like the beam voltage supply, is a conventional degenerative voltage regulator, and consists of full-wave rectifier V106, series regulator V107, control amplifier V108, and voltage reference V109. Since the positive side of the -600 volt supply is tied to the output of the beam voltage supply, these two supplies form the reflector voltage supply. The output level of the -600 volt supply (between the beam voltage supply output and the junction of R128 and R129) is set by Reflector V Adj control R125.

3-60. Afc Amplifier. The capability of automatically maintaining the output frequency of the klystron local oscillator 260 Mc away from the applied r-f signal is accomplished by afc amplifier V110, in conjunction with its associated circuitry, the -600 volt supply, and the d-c error signal obtained from the afc/fm amplifier. When AFC ON switch S103 is set to "off", relay K102 is unenergized and the output of the reflector voltage supply is coupled to the tuning unit. When S103 is set to ON, afc amplifier V110 is inserted into the -600 volt supply. The d-c error signal developed by the afc/fm amplifier is coupled to the control grid of V110 through appropriate interlocks. This error signal alters the voltage at the plate, which is applied to the tuning unit. This change in reflector voltage supply output causes the klystron local oscillator frequency to shift in that direction which returns the third i-f signal to 40 Mc.

3-61. -108 Volt Supply. The -108 volt supply, consisting of half-wave rectifier V113 and voltage regulator V117, employs the sustaining voltage of a gas-discharge tube to maintain an essentially constant output.

3-62. +120 Volt Supply. The +120 volt supply consists of parallel full-wave rectifiers V111 and V112, parallel dual-section series regulators V114 and V115, control amplifier V116, and the -108 volt supply. This degenerative voltage regulator produces the B+ voltage employed in the Model R.


SIGNAL
DETECTOR
V410A
1/2 6AL5
PEAK
DETECTOR
V607A
1/2 6U8
40-MC
THIRD
I-F
SIGNAL
L457
50
J406
P112
J604
L455
10
C482
15
R623
10K
C606
2000
R63
250M
S105A
S105B
AVERAGE PEAK
S105
POS
FUNCTION
1
AVERAGE
2
PEAK
R154
7.5K

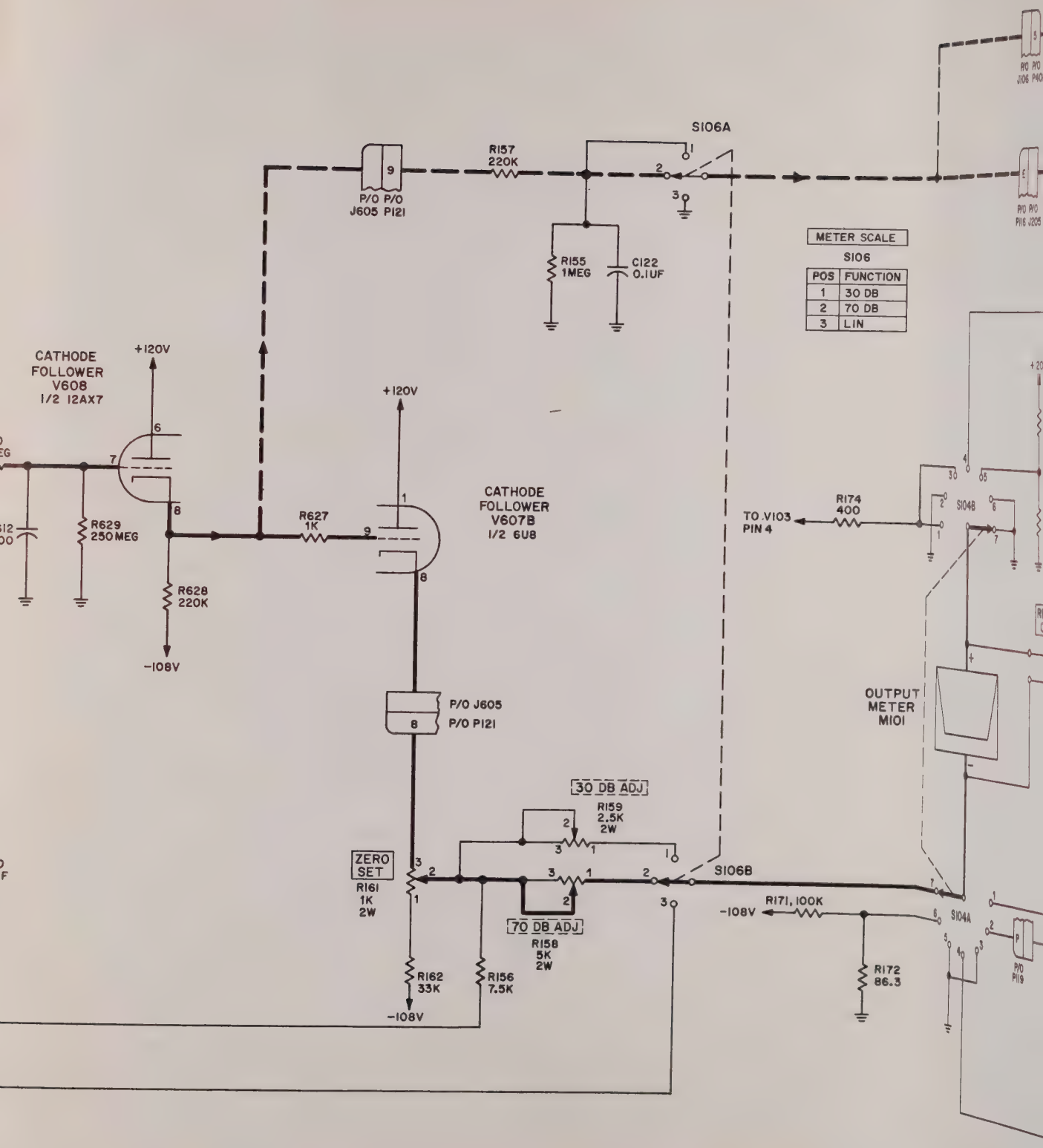
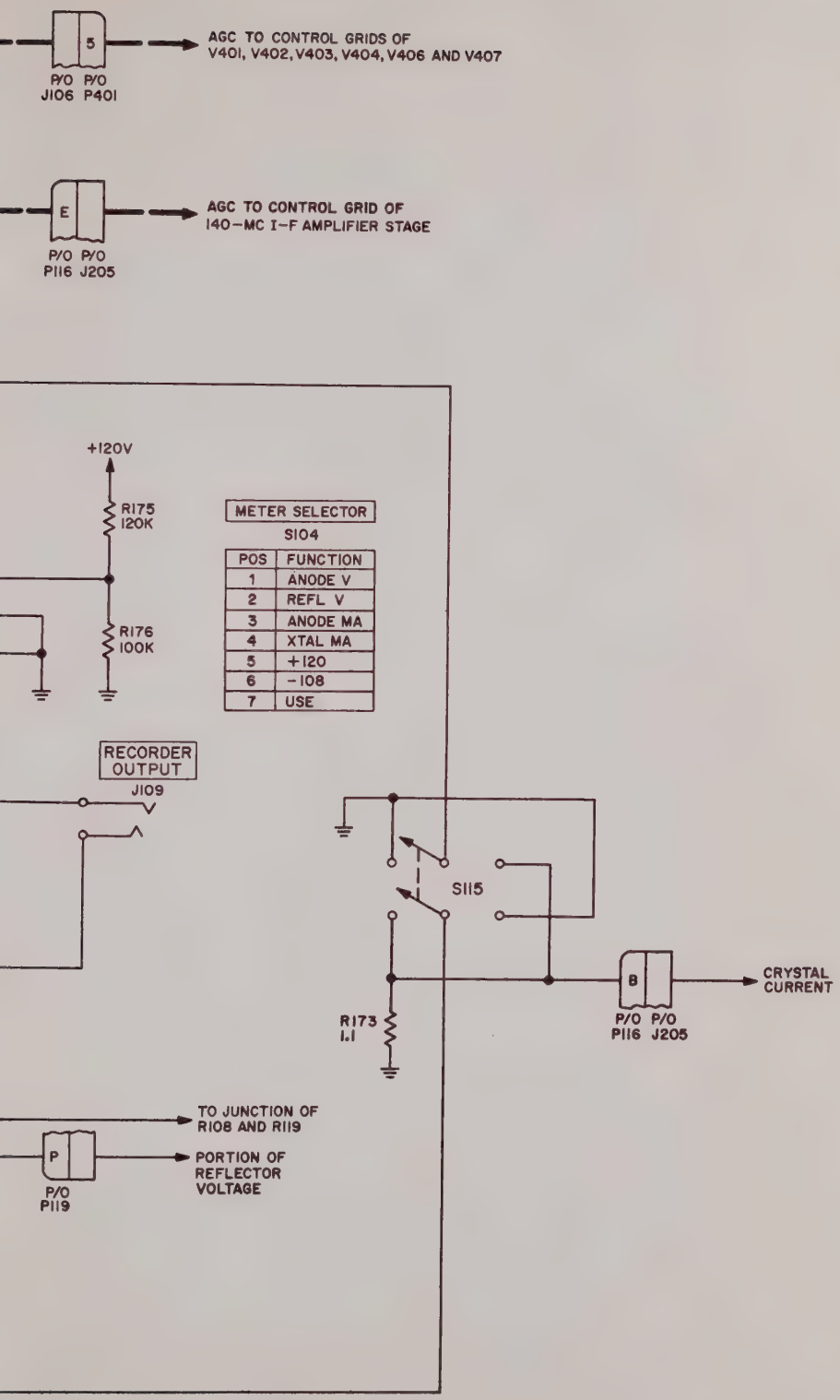
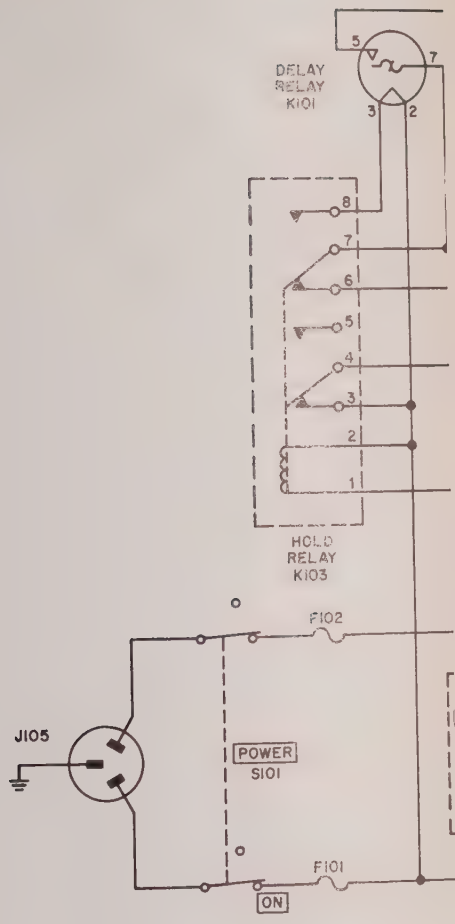


Figure 3-7. Peak-Reading Vtvm

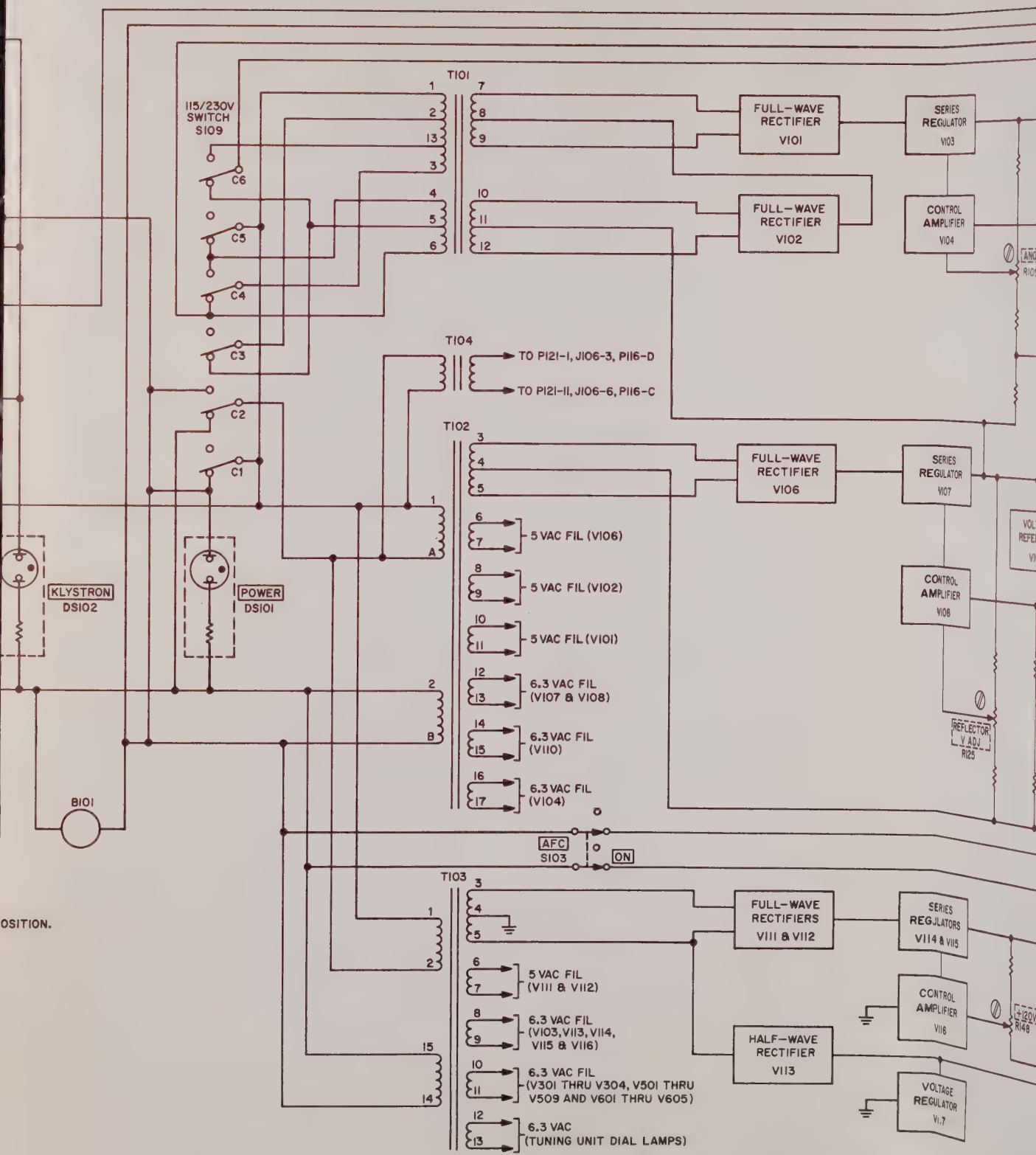


Reading Vtvm and Associated Circuitry, Composite Schematic Diagram



NOTES:

1. 115/230V SWITCH SHOWN IN 115V POSITION
2. HOLD RELAY K103 SHOWN IN ENERGIZED


T101
115/230V SWITCH S109
C6
C5
C4
C3
C2
C1
FULL-WAVE RECTIFIER V101
FULL-WAVE RECTIFIER V102
SERIES REGULATOR V103
CONTROL AMPLIFIER V104
T104
TO P121-I, J106-3, P116-D
TO P121-II, J106-6, P116-C
T102
FULL-WAVE RECTIFIER V106
SERIES REGULATOR V107
CONTROL AMPLIFIER V108
5 VAC FIL (V106)
5 VAC FIL (V102)
5 VAC FIL (V101)
6.3 VAC FIL (V107 & V108)
6.3 VAC FIL (V110)
6.3 VAC FIL (V104)
KLYSTRON DS102
POWER DS101
B101
AFC S103
ON
T103
FULL-WAVE RECTIFIERS V111 & V112
HALF-WAVE RECTIFIER V113
SERIES REGULATORS V114 & V115
CONTROL AMPLIFIER V116
VOLTAGE REGULATOR V117
5 VAC FIL (V111 & V112)
6.3 VAC FIL (V103, V113, V114, V115 & V116)
6.3 VAC FIL (V301 THRU V304, V501 THRU V509 AND V601 THRU V605)
6.3 VAC (TUNING UNIT DIAL LAMPS)
REFLECTOR V ADJ R125

OSITION.

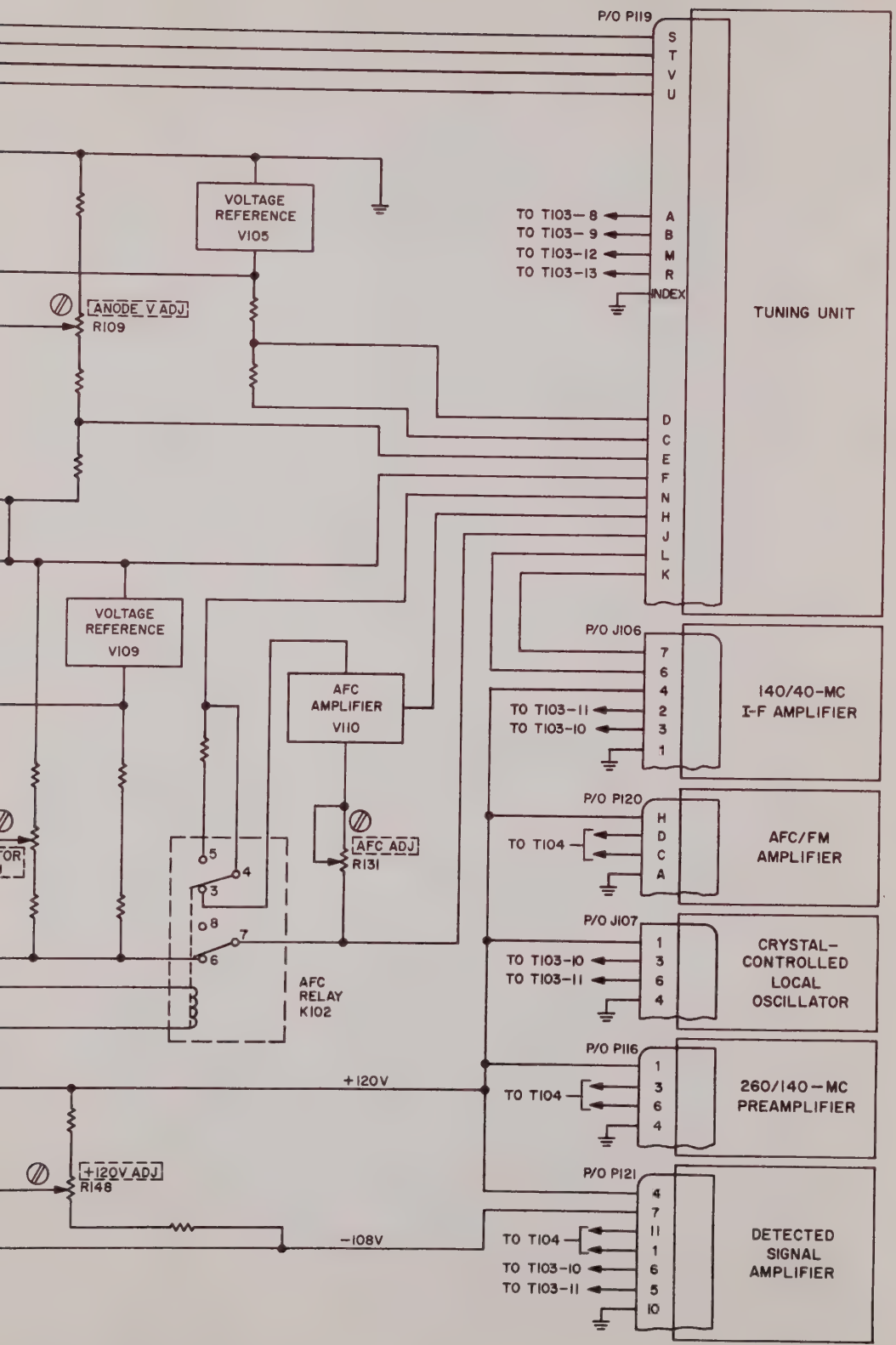


Figure 3-8. Power Distribution Diagram

SECTION IV
MAINTENANCE

4-1. GENERAL.

4-2. This section contains maintenance information for the Model R Receiver. Included are a list of required test equipment, minimum performance standards, symptomatic troubleshooting procedures for localizing a malfunction to an individual assembly, and alignment and calibration procedures necessary to restore the Model R to original operation condition after the required repairs have been effected.

4-3. TEST EQUIPMENT REQUIRED.

4-4. Table 4-1 lists and describes the applications of the test equipment required for the maintenance of the Model R.

TABLE 4-1. TEST EQUIPMENT REQUIRED

Equipment and Manufacturer	Application
Simpson Model 260 Multimeter	Voltage and resistance measurements
Fluke Model 801 Differential Voltmeter and Model 80B5 Voltbox	Setting beam and reflector voltages
Measurements Model 80 Standard Signal Generator	Aligning i-f circuitry
Measurements Model 111-B Crystal Calibrator	Frequency calibration
Telex Model MR-6 Headset	Frequency calibration
General Radio Type 805-D Standard Signal Generator	Aligning i-f circuitry
RCA Model WV98 Vtvm	Aligning i-f circuitry
Simpson Model 373 Milliammeter	Setting reflector supply current
Tektronix Model 531A Oscilloscope with Type H Preamplifier	Tracking reflector voltage
PRD Models 587-A, 535, and 536 Frequency Meters	Tracking reflector voltage
FXR Models N410A and N414A Frequency Meters	Tracking reflector voltage
Polarad Model MK-1 Klystron Mode Alignment Modulator	Tracking reflector voltage
PRD Model 613-M Crystal Detector	Tracking reflector voltage
Waveline Models 7594A and 7594C Transitions (2 of each)	Tracking reflector voltage
Waveline Model 7516 Crystal Mount	Tracking reflector voltage
Polarad B701778 Flexible Waveguide	Tracking reflector voltage
General Radio Model 1021 Standard Signal Generator	Tracking preselector
Polarad Models MSG-1R, MSG-2R, 1107, 1108, and 1109 Microwave Signal Generators	Tracking preselectors
PRD Model 354-B Waveguide-to-Coax Adapter	Tracking preselector

4-5. MINIMUM PERFORMANCE STANDARDS.

4-6. Table 4-3 lists the minimum performance standards for the Model R. These standards serve as a quick check to determine whether the equipment is in operative condition. Failure of the Model R to provide the designated "normal indication" signifies that the equipment is not operating properly and reference should be made to the applicable paragraphs listed in the table. Set the basic unit controls as indicated in table 4-2 prior to performing the minimum performance standards.

TABLE 4-2. PRELIMINARY CONTROL SETTINGS, MINIMUM PERFORMANCE STANDARDS

Front Panel Control	Setting
POWER ON switch	"off" position (down)
METER SCALE switch	LIN position
METER SELECTOR switch	USE position
AM FM switch	AM position
ZERO SET control	Mid-position
CALIBRATE MANUAL switch	MANUAL position
CALIBRATE GAIN control	Fully counterclockwise
MANUAL GAIN control	Fully counterclockwise
AVERAGE PEAK switch	AVERAGE position
AFC ON switch	"off" position (down)
AFC VOLTS ADJUST control	Mid-position

4-7. DISASSEMBLY AND RE-ASSEMBLY INSTRUCTIONS.

4-8. The Model R should be disassembled only to the extent necessary to effect replacement and/or repair.

4-9. DUST COVER REMOVAL. Access to all major basic unit assemblies and components is obtained by removing the equipment from its dust cover. To remove the dust cover, proceed as follows:

WARNING

BE SURE TO REMOVE OPERATING POWER FROM THE MODEL R BEFORE ATTEMPTING TO REMOVE THE DUST COVER.

a. With operating power removed from the equipment, turn each of the two captive-lock fasteners (located at the rear of the dust cover) one-quarter turn counterclockwise with a screwdrive.

WARNING

THE MODEL R (WITH A TUNING UNIT INSTALLED) WEIGHS APPROXIMATELY 175 POUNDS. TWO PEOPLE SHOULD BE EMPLOYED AT ALL TIMES WHEN LIFTING, TRANSPORTING, OR PACKING THE EQUIPMENT.

b. With two men working on the equipment, grasp the two tuning unit front panel handles and carefully slide the Model R from its dust cover.

4-10. TUNING UNIT REMOVAL. The procedure for removing a tuning unit from the basic unit is outlined in step c of paragraph 2-7.

4-11. POWER SUPPLIES, ALIGNMENT:

4-12. Operating power for the Model R is obtained from the basic unit power supply which develops -108 volts, +120 volts, beam voltage, and reflector voltage. The procedures for setting the output level of the +120 volt supply is described in paragraph 4-13; that for the beam and reflector supplies is described in paragraph 4-14.

4-13. +120 VOLT SUPPLY. To set the output level of the +120 volt supply, proceed as directed below:

a. With operating power removed from the Model R, connect the positive probe of a Simpson Model 260 Multimeter to the terminal marked "+120" of TB103. Connect the common probe to chassis ground and set the multimeter for a full-scale deflection of +250 volts.

b. Energize the Model R and allow the equipment to warm up.

c. Set +120 V Adj control R148 (see figure 4-1) to obtain a voltmeter indication of +120 volts. Lock the shaft nut of R148 to maintain this output level and de-energize the equipment. Remove the voltmeter.

4-14. BEAM AND REFLECTOR SUPPLIES. To set the output levels of the beam and reflector supplies, proceed as directed below:

a. With operating power removed from the Model R, install a Model RM-T, RX-T, RKS-T, or RKU-T Tuning Unit into the basic unit. (If these tuning units are not available, use a Model RR-T, RL-T, RS-T, or RQ-T Tuning Unit.) Do not insert the tuning unit fully into the basic unit.

TABLE 4-3. MINIMUM PERFORMANCE STANDARDS

Step	Purpose	Procedure	Normal Indication	Abnormal Indication Reference
1	To evaluate operating power conditions.	Energize the Model R as described in steps a through g of paragraph 2-7.	POWER indicator lights upon application of operating power	Check power cable. Check power input receptacle. Check S101. Check F101 and F102. Check S109. Check DS101.
			KLYSTRON indicator lights approximately 60 seconds after application of operating power.	Check delay circuitry. Check DS102.
2	To evaluate operation of internal power supplies.	Allow the equipment to warm up for at least 15 minutes. Set METER SELECTOR switch to -108 and note output meter indication.	Output meter pointer deflects to indication within red region of scale.	-108 volt supply inoperative; see table 5-5.
		Set METER SELECTOR switch to +120 and note output meter indication.	Same as above.	+120 volt supply inoperative; refer to paragraph 4-13. If proper level cannot be set, see table 5-5.
		Set METER SELECTOR switch to ANODE V and note output meter indication.	Same as above.	Beam supply inoperative; refer to paragraph 4-14. If proper level cannot be set, see table 5-5, 5-6, or 5-7.
		Set METER SELECTOR switch to REFL V and note output meter indication.	Same as above.	Reflector supply inoperative; refer to paragraph 4-14. If proper level cannot be set, see table 5-5, 5-6, or 5-7.
3	To evaluate beam current drawn by klystron local oscillator.	Set METER SELECTOR switch to ANODE MA and note output meter indication.	Output meter pointer deflects to following indication on linear scale: Tuning Unit — Indication Models RR-T, RL-T, and RS-T — 7 Models RM-T, RX-T, RKS-T, and RKU-T — 5 Model RQ-T — 7 to 8	Klystron local oscillator beam current set at incorrect level; refer to paragraph 4-43. If proper beam current cannot be obtained, replace reflex klystron tube; refer to paragraph 4-39.

(Cont'd)

TABLE 4-3. MINIMUM PERFORMANCE STANDARDS (Continued)

Step	Purpose	Procedure	Normal Indication	Abnormal Indication Reference
4	To evaluate operation of first mixer.	Set METER SELECTOR switch to XTAL MA and, rotating TUNING control throughout band, note output meter indication.	Output meter pointer deflects smoothly over scale (except at mode-switching points in Models RX-T, RKU-T, and RQ-T Tuning Units). Minimum crystal current not less than 0.2 ma.	First mixer defective; refer to paragraph 4-35. Klystron local oscillator inoperative; refer to paragraph 4-43.
5	To evaluate internal noise level.	Set METER SELECTOR switch to USE and note output meter indication.	Output meter pointer deflects to an indication of at least "CAL" (1.5 on linear scale).	I-f circuitry defective; refer to paragraph 4-15.
6	To evaluate zero-set operation.	Set CALIBRATE MANUAL switch to CALIBRATE and adjust CALIBRATE GAIN control to obtain an output meter pointer indication of "CAL" (1.5 on linear scale). Set SCALE SELECTOR switch to 70 DB and adjust ZERO SET control to obtain output meter pointer indication of 0 on linear scale.	Output meter can be set to 0 on linear scale by ZERO SET control.	Peak-reading vtvm defective; see table 5-2.

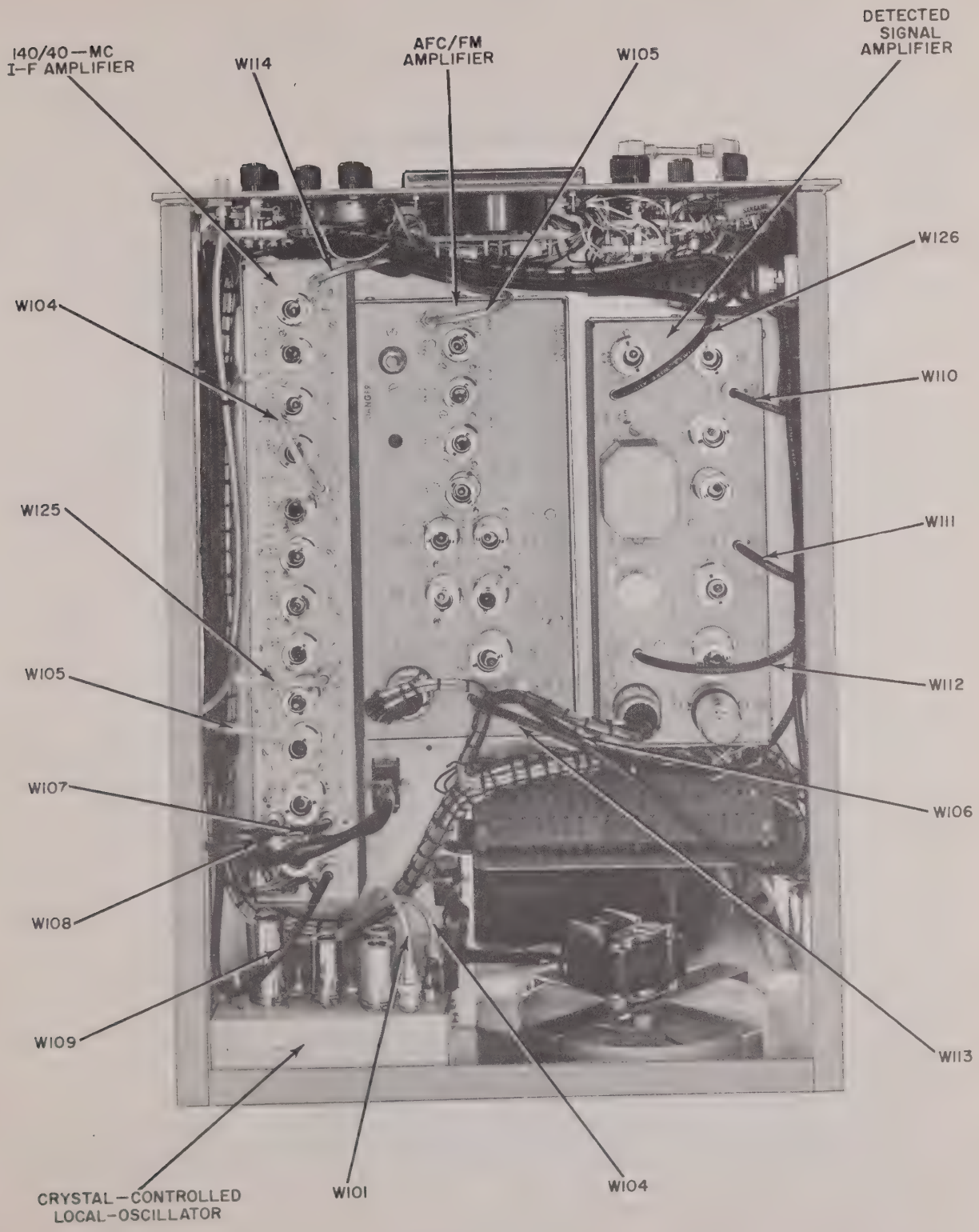


Figure 4-1. Model R-B1 Basic Unit, Top View

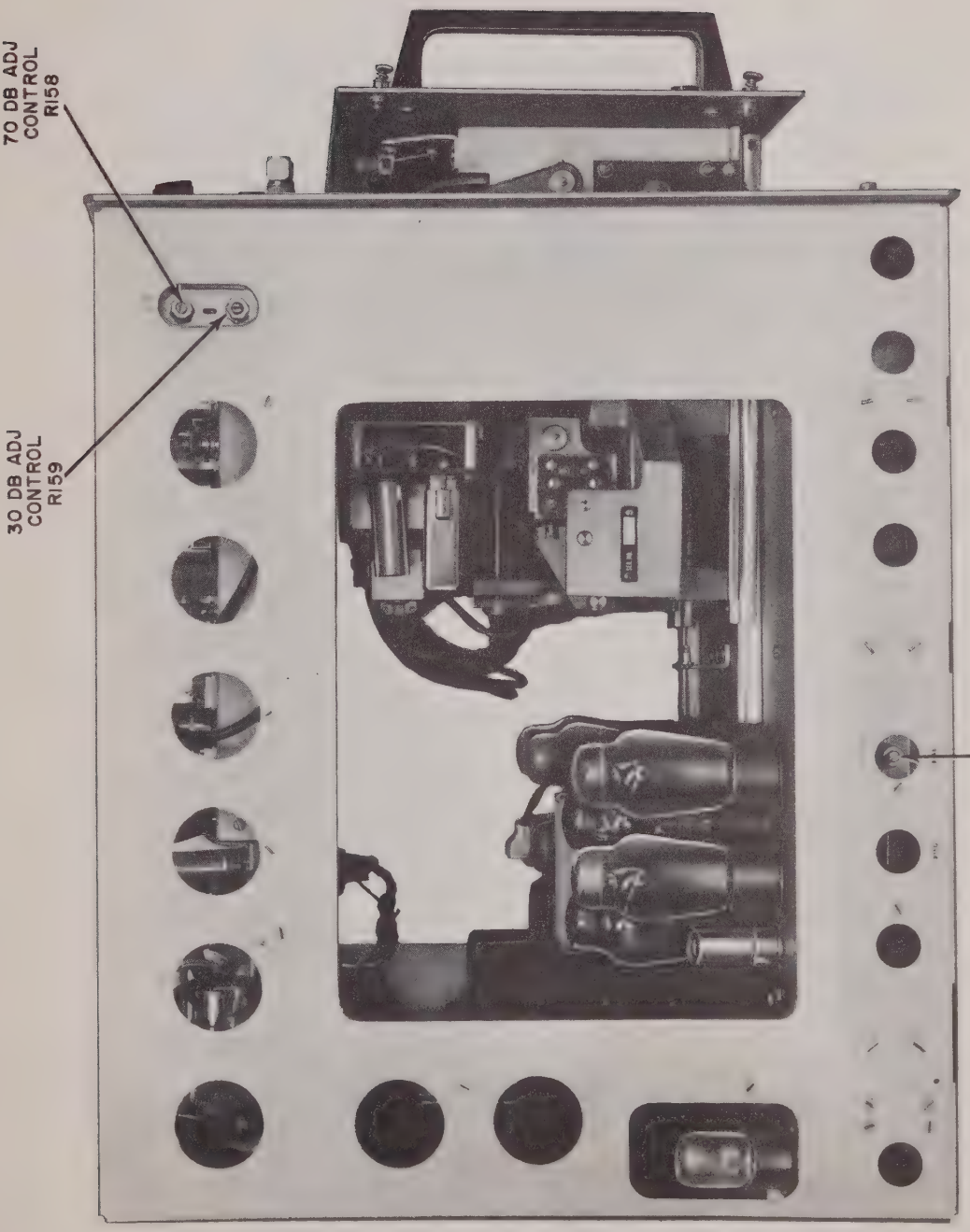


Figure 4-2. Model R-B1 Basic Unit, Left Side View

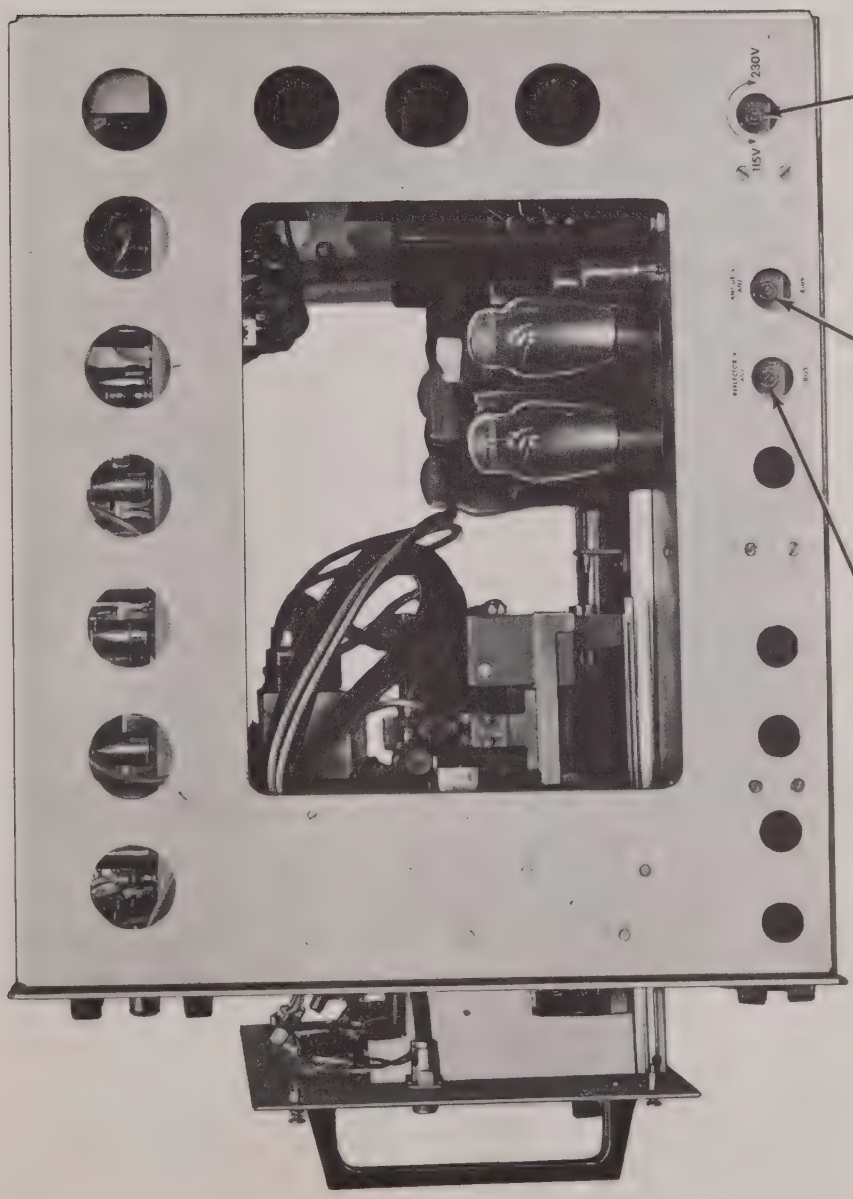


Figure 4-3. Model R-B1 Basic Unit, Right Side View

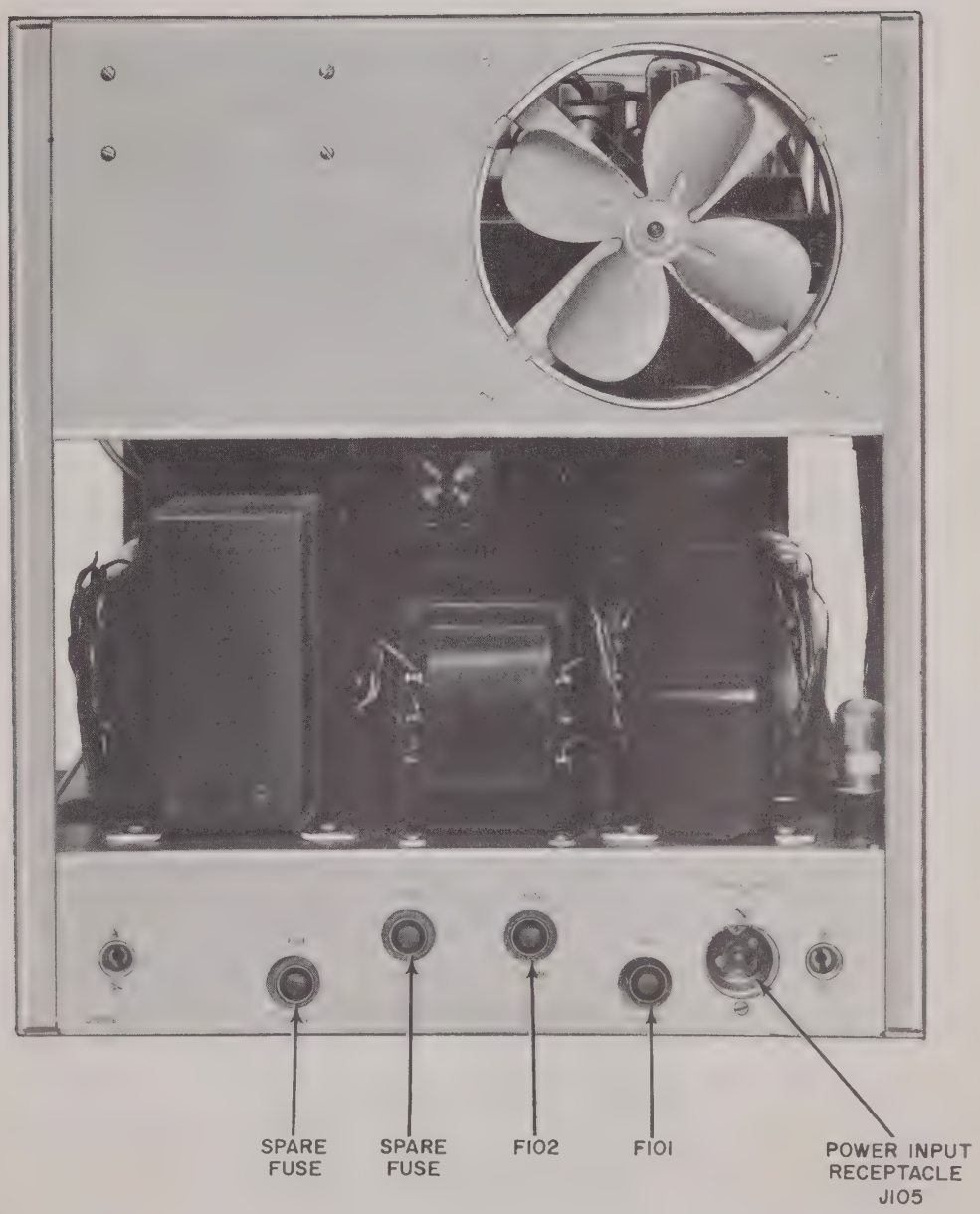


Figure 4-4. Model R-B1 Basic Unit, Rear View

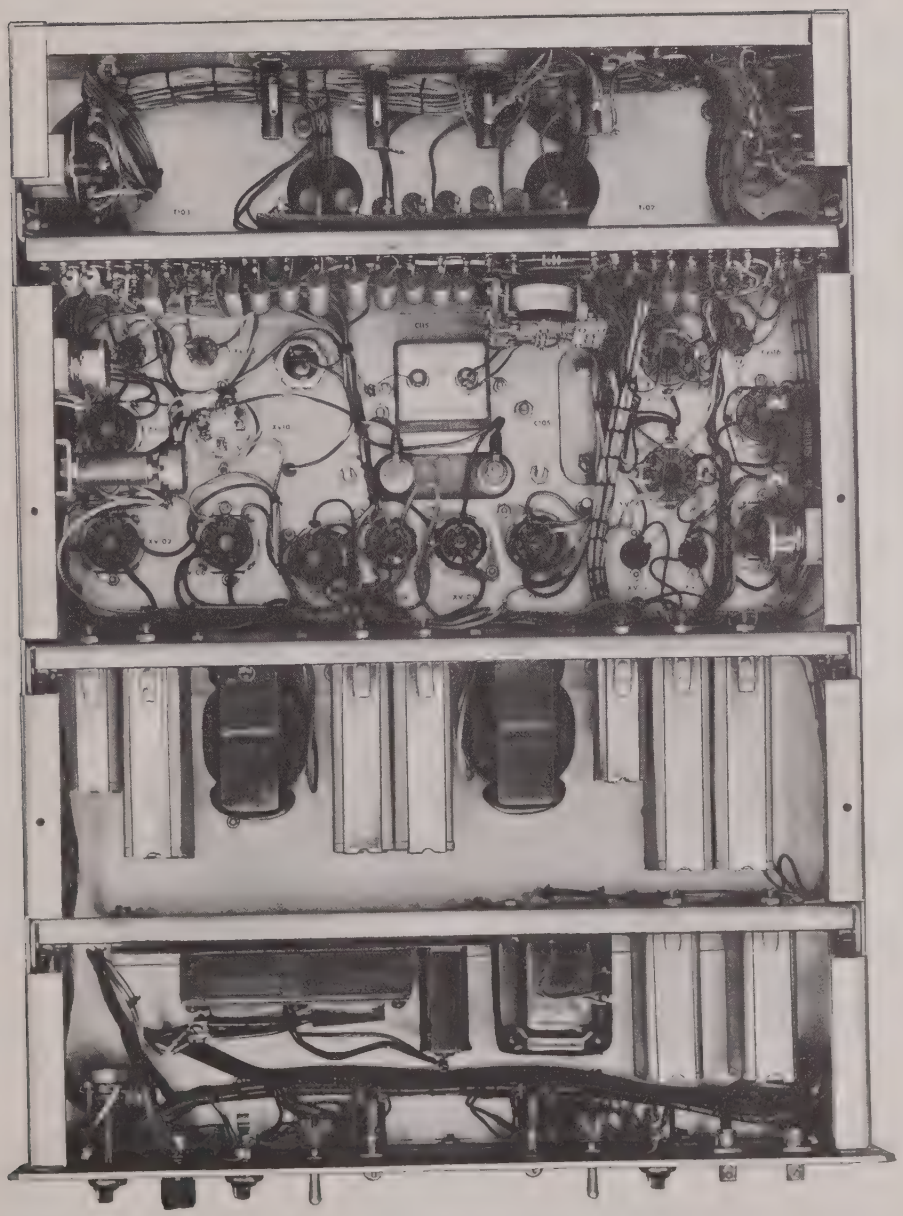


Figure 4-5. Model R-B1 Basic Unit, Bottom View

b. Remove the phenolic protective plate covering the tuning unit high-voltage terminal board.

c. Connect a Fluke Model 801 Differential Voltmeter (through a Fluke Model 80B5 Voltbox) between point K of the tuning unit high-voltage terminal board and ground. Note that the beam voltage is negative with respect to ground.

d. Set the AFC ON switch to "off" (down).

e. Couple the Model R to operating power. Energize the Model R and allow the equipment to warm up for at least 15 minutes.

f. Set Anode V Adj control R109 (see figure 4-3) to obtain the proper beam voltage (-325 volts for the Models RR-T, RL-T, and RS-T Tuning Units; -700 volts for the Model RQ-T Tuning Unit; -1,250 volts for the Models RM-T, RX-T, RKS-T, and RKU-T Tuning Units). Lock the shaft nut of R109.

g. De-energize the Model R and connect the differential voltmeter (through the voltbox) between the point marked "+" of the tuning unit high-voltage terminal board and ground. Note that the voltage at the point marked "+" is negative with respect to ground.

h. Energize the Model R and allow the equipment to warm up. Set Reflector V Adj control R125 (see figure 4-3) to obtain the proper reflector voltage (-925 volts for the Models RR-T, RL-T, and RS-T Tuning Units; -1250 for the Models RM-T, RX-T, RKS-T, and RKU-T Tuning Units; and -1300 volts for the Model RQ-T Tuning Unit). Lock the shaft nut of R125 to maintain this output level.

i. De-energize the Model R and disconnect the test equipment. Resetting the levels of the beam and/or reflector supplies will necessitate retracking of the reflector voltage; refer to paragraph 4-43.

4-15. SYSTEM TROUBLESHOOTING.

4-16. The system troubleshooting procedure for the Model R is given in table 4-4. The probable causes for various symptoms are described,as is the proper remedial action to be taken. Note that many malfunctions can be localized by the minimum performance standards outlined in paragraph 4-5.

4-17. 260-MC BANDPASS FILTER, ALIGNMENT.

4-18. To align the 260-Mc bandpass filter (employed only in the Models RR-T, RKS-T, RKU-T, and RQ-T Tuning Units), proceed as directed in the following steps:

Note

This procedure assumes that the 260/140-Mc preamplifier, 140/40-Mc i-f amplifier, and crystal-controlled local oscillator are functioning properly.

a. With the Model R unenergized, slide the tuning unit out of the basic unit and disconnect P1106 from its mating receptacle on the 260-Mc bandpass filter.

b. With the controls set as indicated in table 4-2, energize the Model R and allow the equipment to warm up.

c. Adjust the MANUAL GAIN control to obtain an output meter indication of 1 on the linear scale.

d. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 260 Mc (by means of a crystal calibrator and headset). Adjust the signal generator for minimum output power. Couple the signal generator to J1106 through a length of 50-ohm cable.

e. Increase the signal generator output meter indication of 5 on the linear scale.

f. Tune L1113, C1113, C1114, and L1114 to obtain a maximum output meter indication.

g. Adjust the signal generator for minimum output level and set the MANUAL GAIN control to obtain an output meter indication of 2 on the linear scale.

h. Carefully increase the signal level to obtain an output meter indication of 10 on the linear scale. Note the signal generator output level in -dbm.

i. Without adjusting the signal generator, couple the signal directly to the 260/140-Mc preamplifier input jack.

j. Adjust the signal generator output level to obtain an output meter indication of 10 on the linear scale. Note the signal level in -dbm. An insertion loss of 1 db or less indicates satisfactory operation of the 260-Mc bandpass filter.

k. De-energize and disconnect the test equipment. Connect P1106 to J1106 and connect the output of the filter to the input of the preamplifier.

4-19. 260/140-MC PREAMPLIFIER, ALIGNMENT.

4-20. Four different preamplifier assemblies are used in the Model R. Table 4-5 lists the preamplifier assembly employed in each tuning unit and references the applicable alignment procedure.

TABLE 4-4. SYSTEM TROUBLESHOOTING

Symptom	Probable Cause	Remedy
Low noise level and no signal.	260/140-Mc preamplifier inoperative.	Repair and align (refer to paragraph 4-19) 260/140-Mc preamplifier.
	140/40-Mc i-f amplifier inoperative.	Check V401 through V410 (see table 5-2). Repair and align (refer to paragraph 4-25) 140/40-Mc i-f amplifier.
	Crystal-controlled local oscillator inoperative.	Check V301 through V304 (see table 5-3). Repair and align (refer to paragraph 4-27) crystal-controlled local oscillator.
Low sensitivity.	Klystron local oscillator improperly tracked.	Retrack klystron local oscillator reflector voltage (refer to paragraph 4-43.
	Preselector (Models RR-T, RL-T, RS-T, RM-T, and RX-T Tuning Units only) improperly tracked.	Retrack preselector (refer to paragraph 4-50.
	260-Mc bandpass filter (Models RR-T, RKS-T, RKU-T, and RQ-T Tuning Units only) improperly aligned.	Align filter (refer to paragraph 4-17).
Afc capability inoperative.	Afc/fm amplifier inoperative.	Check V501 through V506 (see table 5-4). Repair and align (refer to paragraph 4-31) afc/fm amplifier.
	Afc amplifier inoperative.	Check V110 (see table 5-1). Repair and align amplifier (refer to paragraph 4-33).
No trigger output.	Detected signal amplifier inoperative.	Check V604A, V601, V602, and V603 (see table 5-2). Repair detected signal amplifier.
	140/40-Mc i-f amplifier inoperative.	Check V411 (see table 5-1). Repair 140/40-Mc i-f amplifier.
	Afc/fm amplifier inoperative.	Check V507, V508, and V509B (see table 5-4). Repair and align (refer to paragraph 4-31) afc/fm amplifier.
No audio output.	Detected signal amplifier inoperative.	Check V604B and V605 (see table 5-2). Repair detected signal amplifier.
No video output.	140/40-Mc i-f amplifier inoperative.	Check V412 (see table 5-1). Repair 140/40-Mc i-f amplifier.
	Afc/fm amplifier inoperative.	Check V509A (see table 5-4). Repair afc/fm amplifier.

TABLE 4-5. PREAMPLIFIER ASSEMBLIES

260/140-Mc Preamplifier Assembly	Employed in Tuning Unit(s)	Applicable Alignment Procedure
A201	Models RL-T, RS-T, RM-T, and RX-T	Paragraph 4-21
A202	Models RL-T, RS-T, RM-T, RX-T, RKS-T, RKU-T, and RQ-T	Paragraph 4-22
A203	Models RL-T, RS-T, and RM-T	Paragraph 4-23
A1104	Model RR-T	Paragraph 4-24

WARNING

HIGH VOLTAGES ARE PRESENT IN THE TUNING UNITS WHEN THE EQUIPMENT IS ENERGIZED. OBSERVE EXTREME CAUTION WHEN MAKING ANY ADJUSTMENTS WITHIN THE TUNING UNIT.

Note

The procedures of paragraphs 4-21 through 4-24 assume that the crystal-controlled local oscillator, 140/40-Mc i-f amplifier, and detected signal amplifier are functioning properly.

4-21. PREAMPLIFIER ASSEMBLY A201. To align preamplifier assembly A201, proceed as directed below:

a. With the controls set as indicated in table 4-2, slide the tuning unit out of the basic unit and disconnect P201 from its mating connector on the preamplifier.

b. Energize the Model R and allow the equipment to warm up.

c. Adjust the MANUAL GAIN control to obtain an output meter pointer indication of 1 on the linear scale.

d. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 260 Mc (by means of a crystal calibrator and headset) and adjust for minimum output power. Couple the signal generator to J201 through a length of 50-ohm cable.

e. Increase the signal generator output level to obtain an output meter pointer indication of 5 on the linear scale.

f. Tune T202 to obtain a maximum output meter indication. (If the output meter pointer deflects to an off-scale indication, reduce the signal generator output level.)

g. Tune T201 to obtain a maximum output meter indication.

h. Tune T200 to obtain a maximum output meter indication.

i. Tune L204 and C203 to peak the output meter indication.

j. Tune C231 to obtain a minimum output meter indication.

k. Adjust the signal generator for minimum output power.

l. Adjust the MANUAL GAIN control to obtain an output meter indication of 2 on the linear scale.

m. Carefully increase the signal generator output level to obtain an output meter indication of 2.8 on the linear scale. Note the output level of the signal generator (in microvolts). (This is the sensitivity at the input of the preamplifier.) A sensitivity of at least 2.5 uv indicates satisfactory operation.

n. De-energize and disconnect the equipment.

o. Connect P201 to J201.

4-22. PREAMPLIFIER ASSEMBLY A202. To align preamplifier assembly A202, proceed as directed below:

a. With the controls set as indicated in table 4-2, slide the tuning unit out of the basic unit and disconnect P206 from its mating connector on the preamplifier.

b. Energize the Model R and allow the equipment to warm up.

c. Adjust the MANUAL GAIN control to obtain an output meter pointer indication of 1 on the linear scale.

d. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 260 Mc (by means of a crystal calibrator and headset) and adjust for minimum output power. Couple the signal generator to J206 through a length of 50-ohm cable.

e. Increase the signal generator output level to obtain an output meter pointer indication of 5 on the linear scale.

f. Tune T202 to obtain a maximum output meter indication. (If the output meter pointer deflects to an off-scale indication, reduce the signal generator output level.)

g. Tune T201 to obtain a maximum output meter indication.

h. Tune L204 to obtain a maximum output meter indication.

i. Adjust the signal generator for minimum output power.

j. Adjust the MANUAL GAIN control to obtain an output meter pointer indication of 2 on the linear scale.

k. Carefully increase the signal generator output level to obtain an output meter indication of 2.8 on the linear scale. Note the output level of the signal generator (in microvolts). (This is the sensitivity at the input to the preamplifier.) A sensitivity of at least 2.5 uv indicates satisfactory operation.

l. De-energize and disconnect the equipment.

m. Connect P206 to J206.

4-23. PREAMPLIFIER ASSEMBLY A203. To align preamplifier assembly A203, proceed as directed in steps a through g of paragraph 4-22, and then continue as directed below:

a. Tune L218 to obtain a maximum output meter indication.

b. Perform steps i through m of paragraph 4-23.

4-24. PREAMPLIFIER ASSEMBLY A1104. To align preamplifier assembly A1104, proceed as directed below:

a. With the controls set as indicated in table 4-2, slide the tuning unit out of the basic unit and disconnect P1109 from its mating connector on the preamplifier.

b. Energize the Model R and allow the equipment to warm up.

c. Adjust the MANUAL GAIN control to obtain an output meter pointer indication of 1 on the linear scale.

d. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 260 Mc (by means of a crystal calibrator and headset) and adjust for minimum output power. Couple the signal generator to J1109 through a length of 50-ohm cable.

e. Increase the signal generator output level to obtain an output meter pointer indication of 5 on the linear scale.

f. Tune T1104 to obtain a maximum output meter indication. (If the output meter pointer deflects to an off-scale indication, reduce the signal generator output level.)

g. Tune L1103 to obtain a maximum output meter indication.

h. Tune L1120 to obtain a maximum output meter indication.

i. Perform steps i through l of paragraph 4-22.

j. Connect P1109 to J1109.

4-25. 140/40-MC I-F AMPLIFIER, ALIGNMENT.

4-26. To align the 140/40-Mc i-f amplifier, proceed as directed below:

Note

This procedure assumes that the detected signal amplifier and crystal-controlled local oscillator are functioning properly.

a. Set the basic unit front panel controls as indicated in table 4-2.

b. Disconnect P401, P402, P403, P404, P405, and P407 from their mating receptacles (J401, J402, J403, J404, J405, and J407, respectively). Energize the Model R and allow the equipment to warm up.

c. Tune a General Radio Type 805-D Standard Signal Generator (by means of a crystal calibrator and headset) for a cw output at 40 Mc. Adjust the signal generator for maximum output. Couple the signal generator to J402 through a length of 50-ohm cable. Adjust the signal generator output level to obtain an output meter indication of 5 on the linear scale.

d. Tune L425, L429, L437, L447, and L451, in turn, to obtain maximum output meter deflections. If the output meter pointer deflects to an off-scale indication, reduce the signal generator output level to obtain an on-scale indication.

e. Remove the signal generator and connect P402 to J402. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 140 Mc (by means of a crystal calibrator and headset) and adjust the signal generator for minimum output power. Couple the signal generator to J401 through a length of 50-ohm cable and increase the signal level to obtain an output meter indication of 5 on the linear scale.

f. Tune L405, L409, L413, L419, and L426, in turn, to obtain maximum output meter deflections. If the output meter pointer deflects to an off-scale indication, adjust the signal level to obtain an on-scale reading.

g. Connect P403, P404, P405, and P407 to their mating receptacles.

h. Connect the probe of an RCA Model WV98C Vtvm to test point J505 on the afc/fm amplifier. Connect the common lead to chassis ground. Set the vtvm to -5 volts and retune L451 to obtain a maximum vtvm indication. Remove the vtvm.

i. Adjust the signal generator for minimum output power and adjust the MANUAL GAIN control to obtain an output meter indication of 1 on the linear scale.

j. Carefully increase the signal generator output level to obtain an output meter indication of 1.4 on the linear scale. Note the signal generator output level required; it should be equal to or less than 3.5 uv.

k. Set the MANUAL GAIN control to mid-position

and adjust the signal generator output level to obtain an output meter indication of 10 on the linear scale. Note the signal generator output level.

l. Detune the signal generator, while maintaining its output level at the value noted in step k, to obtain the upper and lower 3-db frequencies (output meter indicates 7.1 on the linear scale). A 3-db bandwidth of between 3.0 and 3.5 Mc indicates satisfactory operation.

m. De-energize and disconnect the test equipment.

4-27. CRYSTAL-CONTROLLED LOCAL OSCILLATOR, ALIGNMENT.

4-28. To align the crystal-controlled local oscillator, proceed as directed below:

a. Connect the probe of an RCA Model WV98C Vtvm (set for -5 Vdc) to pin 2 of V301 through a 1-megohm resistor. Connect the common lead to chassis ground.

b. Tune L302 to peak the vtvm indication (approximately -3 volts).

Note

Adjustment of L302 is critical. Improper or poor peaking of L302 will result in low output power regardless of the tuning of the following stages.

c. Set the vtvm for -15 Vdc and connect the probe (through the 1-megohm resistor) to pin 1 of V302.

d. Tune L303 to obtain a maximum vtvm indication (approximately -5 volts).

e. Connect the vtvm probe (through the 1-megohm resistor) to pin 1 of V303.

f. Tune L308 to obtain a maximum vtvm indication (approximately -15 volts). Remove the vtvm.

g. Connect a 50-ohm crystal detector (see figure 4-6) to J302. Connect the vtvm to the detector output and tune T301 to peak the vtvm indication. A reading between 1.0 and 1.5 volts signifies satisfactory operation.

h. Connect the 50-ohm detector and vtvm to J301. Tune T302 to peak the vtvm indication. A reading between 2.5 and 3.0 volts signifies satisfactory operation. Remove the detector and vtvm.

i. De-energize the equipment and replace the chassis into the basic unit.

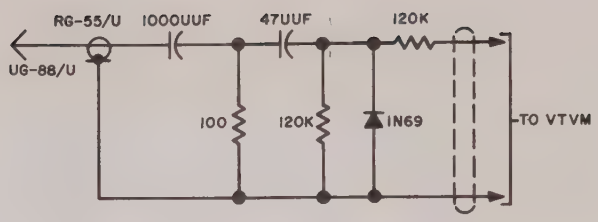


Figure 4-6. 50-Ohm Crystal Detector, Schematic Diagram

4-29. OUTPUT METER SCALE TRACKING.

4-30. Repair and/or re-alignment of any subassembly ahead of the output meter will necessitate retracking of the 70 and 30 db scales. To retrack the output meter, proceed as directed in the following steps:

Note

The accuracy of the output meter scale tracking procedure is dependent upon the sensitivity of the tuning unit employed. It is assumed that the tuning unit used in this procedure meets the minimum r-f sensitivity specification of paragraph 1-24.

a. With the Model R withdrawn from its dust cover, install a Model RR-T, RL-T, RS-T, RM-T, or RX-T Tuning Unit into the basic unit.

b. With the controls set as indicated in table 4-2, energize the Model R and allow the equipment to warm up for at least 15 minutes.

c. Adjust the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication near the high end of the band.

d. Adjust the MANUAL GAIN control to obtain an output meter indication of "CAL" (1.5 on the linear scale).

e. Set a microwave signal generator (see table 4- to the frequency to which the Model R is tuned. Calibrate the signal generator and adjust for a minimum cw output level.

f. Couple the signal generator to the RF INPUT connector and adjust the former for a cw output level approximately 6 db above the sensitivity of the tuning unit.

g. Fine tune the signal generator to obtain a maximum output meter indication. (If the output meter pointer deflects to an off scale indication, reduce the signal generator output level.)

h. Without further adjustment of the signal generator frequency or the TUNING control, adjust the signal generator for minimum output power and set the MANUAL GAIN control for an output meter indication of "CAL".

i. Set the METER SCALE switch to 70 DB and adjust the ZERO SET control to obtain an output meter pointer indication at the extreme left-hand calibration mark of the 70 db scale (corresponding to 0 on the linear scale).

j. Increase the signal generator output level to obtain an output meter pointer indication of 0 on the 70 db scale. Note the signal generator output level. This level (less the db error of the signal generator and the attenuation of the coupling cable) is the tuning unit sensitivity at the test frequency.

k. Increase the signal generator output level exactly 70 db and, if necessary, set 70 DB ADJ control R158 (see figure 4-2) to obtain an output meter pointer indication of exactly 70 on the 70 db scale.

l. Reduce the signal generator output level exactly 70 db. The output meter should read 0 on the 70 db scale. Repeat steps h through l until no further adjustment of R158 is required. Lock the shaft nut of R158.

m. Increase the signal level in 10-db increments. After each step note the output meter indication. The output meter should track within an accuracy of ±2 db.

n. Adjust the signal generator for minimum output power and set the METER SCALE switch to LIN.

o. Adjust the MANUAL GAIN control to obtain an output meter indication of "CAL".

p. Set the METER SCALE switch to 30 DB and adjust the ZERO SET control to obtain an output meter pointer indication at the extreme left-hand calibration mark of the 30-db scale (corresponding to 0 on the linear scale).

q. Increase the signal generator output level to obtain an output meter pointer indication of 0 on the 30 db scale. Note the signal generator output level.

r. Increase the signal generator output level exactly 30 db and, if necessary, set 30 DB ADJ control R159 (see figure 4-2) to obtain an output meter pointer indication of exactly 30 on the 30 db scale.

s. Reduce the signal generator output level 30 db. The output meter should read 0 on the 30 db scale. Repeat steps n through s until no further adjustment of R159 is required. Lock the shaft nut of R159.

t. Increase the signal level in 5-db increments. After each step note the output meter indication. The output meter should track within an accuracy of ±1 db.

u. De-energize and disconnect the equipment.

4-31. AFC/FM AMPLIFIER, ALIGNMENT.

4-32. To align the afc/fm amplifier, proceed as directed in the following steps:

WARNING

DISCONNECT P119 FROM ITS MATING RECEPTACLE IN THE TUNING UNIT PRIOR TO ALIGNMENT OF THE AFC/FM AMPLIFIER.

a. With the Model R in an unenergized state, disconnect P501 from J501 and remove the afc/fm amplifier from its mounting in the basic unit. Remove the cover plate from the afc/fm amplifier chassis.

b. With the AFC ON switch set to "off" energize the Model R.

c. Adjust C511 for maximum capacitance.

d. Tune a Measurements Model 80 Standard Signal Generator for a cw output at 40 Mc (by means of a crystal calibrator and headset) and couple the signal to J501 through a length of 50-ohm cable.

Note

The output level of the Model 80 is to be maintained at 50 millivolts throughout this alignment procedure.

e. Set an RCA Model WV98 Vtvm for -15 volts and connect the probe to pin 1 of V503 through a 1-megohm isolation resistor. Connect the common lead to chassis ground.

Note

All voltage measurements in this procedure are to be taken with a 1-megohm isolation resistor in series with the vtvm probe.

f. Tune T501, L501, and L503 to obtain a maximum vtvm indication (approximately -6 volts).

g. Connect the vtvm probe to pin 1 of V504 and tune L512 to obtain a maximum vtvm indication (approximately -5 volts).

h. Connect the vtvm probe to pin 1 of V507 and tune L507 to obtain a maximum vtvm indication and remove the vtvm.

i. Set R552 to mid-position.

j. Set the vtvm for +5 volts and connect the probe to the junction of R552 and L511. Connect the common lead of the vtvm to the junction of R552 and L513.

k. Tune the signal generator to 41.75 Mc and tune L509 to obtain a maximum vtvm indication (greater than +2 volts).

l. Set the vtvm for -5 volts and adjust the signal generator for an output at 38.25 Mc. Tune L508 to obtain a maximum vtvm indication (greater than -2 volts).

m. Adjust the signal generator for an output at exactly 40 Mc and set R552 to obtain a vtvm indication of 0 volts.

n. Retune the signal generator to 38.25 Mc and adjust C511 to obtain a vtvm indication of -2.0 volts.

o. Repeat step m.

p. Set the vtvm for +5 volts and tune the signal generator to 41.75 Mc. The vtvm should read +2 volts ±30%. Disconnect the vtvm.

q. With the vtvm set for -5 volts, connect the probe to the junction of R551 and L520. Connect the common lead to chassis ground.

r. Adjust the signal generator for an output at 37 Mc and tune L514 to obtain a maximum vtvm indication (greater than -1 volt).

s. Set the vtvm for +5 volts and tune the signal generator to 43 Mc.

t. Tune L515 to obtain a maximum vtvm indication (greater than +1 volt).

u. Adjust the signal generator for an output at 40 Mc and set R551 to obtain a vtvm indication of 0 volts.

v. Adjust the signal generator for an output at 43 Mc and note the vtvm indication. Set the vtvm to -5 volts, tune the generator to 37 Mc, and again note the vtvm indication. The two voltages should be within ±20% of each other.

w. De-energize the Model R and disconnect the test equipment. Secure the cover plate to the afc/fm amplifier chassis and replace the afc/fm amplifier into the basic unit. Connect P501 to J501.

4-33. AFC AMPLIFIER, ALIGNMENT.

4-34. To align the afc amplifier, proceed as directed in the following steps:

a. With the Model R in an unenergized state, install a tuning unit into the basic unit.

b. With the AFC ON switch set to "off" and the METER SELECTOR switch set to REFL V, energize the Model R and allow the equipment to warm up for at least 15 minutes.

c. Note the output meter pointer indication.

d. Set the AFC ON switch to ON and, if necessary, set the AFC VOLTS ADJUST control to obtain exactly the same output meter indication as in step c.

e. Set the AFC ON switch to "off" and de-energize the Model R.

4-35. FIRST MIXER, CRYSTAL REPLACEMENT.

4-36. The first mixer crystal diodes used in the tuning units are each seated within a mixer assembly. The procedure for replacing the diode (see table 4-6) in the Model RR-T, RL-T, RS-T, RM-T, RX-T, RKS-T, RKU-T, or RQ-T Tuning Unit is described in paragraph 4-37; that for the Model RX-T Tuning Unit is described in paragraph 4-38.

TABLE 4-6. FIRST MIXER DIODE TYPES

Tuning Unit	First Mixer Ref. Sym. No.	First Mixer Diode Type
Model RR-T	CR1106	1N21D
Model RL-T	CR701	1N23C
Model RS-T	CR801	1N23C
Model RM-T	CR901	1N23D
Model RX-T	CR1001	1N2510
Model RKS-T	CR901	1N286
Model RKU-T	CR1001	1N286
Model RQ-T	CR1201 CR1202	1N53 1N26

4-37. MODELS RR-T, RL-T, RS-T, RM-T, RKS-T, RKU-T, AND RQ-T TUNING UNITS. To replace the crystal diode first mixers in these tuning units, proceed as directed below:

a. With the Model R unenergized, slide the tuning unit out of the basic unit.

b. Disconnect the first mixer crystal holder from its mating receptacle on the mixer assembly.

c. Carefully remove the diode seated in the mixer assembly and insert a replacement diode (see table 4-6).

d. Connect the first mixer crystal holder to its mating receptacle on the mixer assembly.

4-38. MODEL RX-T TUNING UNIT. To replace the first mixer crystal diode in this tuning unit, proceed as directed below:

a. With the Model R unenergized, slide the tuning unit from the basic unit.

b. Unscrew the plug and insulating washer from the mixer assembly.

c. Carefully remove the diode seated within the mixer assembly and insert a replacement diode (see table 4-6).

d. Replace the insulating washer and plug to the mixer assembly.

4-39. KLYSTRON LOCAL OSCILLATOR, TUBE REPLACEMENT.

4-40. The reflex klystron tubes employed as the first local oscillator are seated in external cavities. The procedure for replacing the reflex klystron tube of the Models RR-T, RS-T, RM-T, RX-T, RKS-T, and RKU-T Tuning Units is described in paragraph 4-41; that for the Model RQ-T Tuning Unit is described in paragraph 4-42.

WARNING

HIGH VOLTAGES EXIST AT THE REFLEX KLYSTRON TUBE SOCKET WHEN THE MODEL R IS ENERGIZED. BE SURE TO DE-ENERGIZE THE EQUIPMENT AND REMOVE IT FROM THE SOURCE OF OPERATING POWER BEFORE ATTEMPTING TO REPLACE THE REFLEX KLYSTRON TUBE.

CAUTION

NEVER USE FORCE WHEN MATING THE TUBE SOCKET TO THE BASE PINS OF THE REFLEX KLYSTRON TUBE. FORCED MATING IN AN IMPROPERLY ORIENTED POSITION WILL RESULT IN THE DESTRUCTION OF THE REFLEX KLYSTRON TUBE UPON APPLICATION OF OPERATING POWER. OBSERVE THE MARKINGS ON BOTH THE SOCKET AND THE TUBE WHEN MATING.

4-41. MODELS RR-T, RL-T, RS-T, RM-T, RX-T, RKS-T, AND RKU-T TUNING UNITS. To replace the reflex klystron tubes in these tuning units, proceed as directed in the following steps:

a. With operating power removed from the Model R, withdraw and disconnect the tuning unit from the basic unit (refer to paragraph 4-10). Loosen the single clamp screw that secures the protective shield to the cavity end collar. Carefully remove the protective shield (with the clamp) from its mounting. The knurled end collar, tube socket, and base of the reflex klystron tube will now be visible.

b. Carefully remove the tube socket from the base pins of the reflex klystron tube.

c. Adjust spanner wrench MP101 so that it engages two adjacent holes in the face of the end collar. Gently rotate the spanner wrench counterclockwise (as viewed from the tube end of the cavity) to loosen the end collar. Disengage the wrench and hand turn the end collar through two revolutions. (In the Models RR-T, RL-T, and RS-T Tuning Units, remove the end collar from the cavity.)

d. Grasp the protruding base of the tube and, with a clockwise twisting motion, carefully withdraw the tube from the cavity. (In the Models RR-T, RL-T, and RS-T Tuning Units, be sure to remove the toroidal spring and spacer washer from the cavity after the reflex klystron tube has been removed. These items may come out as the tube is withdrawn from the cavity.)

e. Insert a replacement reflex klystron tube (see table 4-7) into the cavity, imparting a clockwise twisting motion to the tube as it enters the cavity. Continue twisting the tube, while simultaneously pressing it further into the cavity, until a positive stop is encountered. The tube is now properly seated within the cavity. (In the Models RR-T, RL-T, and RS-T Tuning Units, insert the toroidal spring over the base of the reflex klystron tube so that it contacts the first interaction grid ring of the tube. With a screwdriver, gently press the spring into the cavity so that the spring fills the gap between the ring and cavity wall. Insert the spacer washer over the protruding base of the replacement reflex klystron tube and press the spacer washer into the cavity. Replace the end collar to the cavity.

TABLE 4-7. KLYSTRON LOCAL OSCILLATOR TUBE TYPES

Tuning Unit	Ref. Sym. No.	Tube Type
Model RR-T	V1103	ZV1010/7505
Model RL-T	V701	ZV1010/7505
Model RS-T	V801	ZV1009/7045
Model RM-T	V901	5721
Model RX-T	V1001	5721
Model RKS-T	V901	5721
Model RKU-T	V1001	5721

f. Hand-tighten and then, using the spanner wrench, firmly tighten the end collar.

g. Mate the socket to the base pins of the reflex klystron tube.

h. Replace the protective shield over the knurled end collar and secure the two by tightening the strap-clamp screw.

i. Set the Bias Adj control (R701, R801, R901, R1001, or R1101, depending on the tuning unit) fully counterclockwise.

j. Refer to paragraph 4-43 for the reflector voltage tracking procedure to be employed after the reflex klystron has been replaced.

4-42. MODEL RQ-T TUNING UNIT. To replace the reflex klystron tube in this tuning unit, proceed as directed in the following stepa:

a. With operating power removed from the Model R, withdraw and disconnect the tuning unit from the basic unit (refer to paragraph 4-10).

b. Loosen and remove the four 4-40 socket-head cap screws (and lockwashers) that secures the flange of waveguide assembly W1205 to the cavity assembly.

c. While holding W1205, loosen and remove the four 4-40 socket-head cap screws (and lockwashers) that secures the other flange of W1205 to the flange of attenuator assembly AT1201. Carefully remove W1205.

d. Carefully loosen the two klystron tube grounding screws. (One screw is seated in a recessed hole which is located near the mode suppressor pin entrance on the top part of the cavity. The second screw, also seated in a recessed hole, is located on the lower part of the cavity, and is accessible through a clearance hole in the cavity support casting.)

e. Loosen the four 8-32 socket-head cap screws that secures the finned reflector shield (the one with a single wire) to the cavity. Grasp the shield, remove the cap screws and lockwashers, and move the shield toward the front panel. Disconnect the cap from the reflector terminal of the reflex klystron tube.

f. Loosen the three 8-32 socket-head cap screws that secures the finned base shield to the cavity. Grasp the shield, remove the cap screws and lockwashers, and move the shield away from the front panel. Disconnect the tube socket from the reflex klystron base pins.

g. Loosen and remove the four 6-32 socket-head cap screws and lockwashers (located in recessed holes at the right side of the cavity) that secures the cavity end-section to the cavity. Grasp the protruding base of the reflex klystron tube and carefully remove the cavity end-section. Remove the reflex klystron tube.

h. Form two circular gaskets, made from two 2-5/32 inch lengths of AWG 16 (50.82 mil diameter) bare solid-base copper wire, and place these gaskets in the V-grooves of the replacement reflex klystron tube. Do not re-use the gaskets obtained from the replaced tube.

i. Orient the replacement tube in the cavity, with the positioning flange of the tube flush with the rear surface of the cavity and the small (output) window facing the open right side of the cavity. Adjust the wire gasket closer to the tube positioning flange so that the open section of the ring faces down. Adjust the other gasket so that the open section of the ring faces up.

j. Carefully position the cavity end-section over the klystron tube. Gently rotate the tube, if necessary, so that the output window is parallel to the waveguide flange of the cavity end-section.

k. Insert the four 6-32 socket-head cap screws (and lockwashers) into the recessed holes in the cavity end-section. Firmly tighten the screws, making certain that the faces of the cavity sections contact each other.

CAUTION

EXCESSIVE TIGHTENING OF THE GROUNDING SCREWS WILL DAMAGE THE REPLACEMENT REFLEX KLYSTRON TUBE.

l. Carefully tighten the upper and lower klystron tube grounding screws.

m. Connect the cap of the finned reflector shield to the reflector terminal of the reflex klystron tube. Secure the finned reflector shield to the cavity with four 4-40 socket-head cap screws (and lockwashers).

n. Carefully mate the socket of the finned base shield to the base pins of the reflex klystron tube. Secure the finned base shield to the cavity with three 8-32 socket-head cap screws (and lockwashers).

o. Mate the flanges of waveguide assembly W1205 and attenuator assembly AT1201 and secure the two with four 4-40 socket-head cap screws (and lockwashers).

p. Secure the flange of W1205 to the cavity end-section with four 4-40 socket-head cap screws (and lockwashers).

q. Refer to paragraph 4-43 for the reflector voltage tracking procedure to be employed after the reflex klystron has been replaced.

4-43. REFLECTOR VOLTAGE TRACKING.

4-44. Due to variations in reflex klystron characteristics, replacement of the klystron local oscillator tube will necessitate retracking of the reflector volt-

age. Table 4-8 references the paragraphs containing the proper tracking procedures.

TABLE 4-8. REFLECTOR VOLTAGE TRACKING PROCEDURES

Tuning Unit	Refer to
Model RR-T	Paragraph 4-45
Models RL-T and RS-T	Paragraph 4-46
Models RM-T and RKS-T	Paragraph 4-47
Models RX-T and RKU-T	Paragraph 4-48
Model RQ-T	Paragraph 4-49

WARNING

MAINTENANCE PERSONNEL MUST BE CONSTANTLY AWARE OF THE HIGH VOLTAGES EXISTING WITHIN THE TUNING UNIT WHEN THE EQUIPMENT IS ENERGIZED. BE SURE TO USE HIGH-VOLTAGE INSULATING GLOVES AND WELL INSULATED TOOLS WHEN MAKING ADJUSTMENTS TO THE ENERGIZED TUNING UNIT. EXERCISE EXTREME CAUTION AT ALL TIMES.

CAUTION

NEVER ATTEMPT TO ADJUST ANY TAB ON THE ADJUSTABLE-PERIPHERY TUNING CAM UNLESS ALL ADJUSTMENT BOLT NUTS ON THAT SECTION OF THE CAM HAVE FIRST BEEN LOOSENED. FAILURE TO OBSERVE THIS PRECAUTION WILL RESULT IN SHEARING THE RIVETS THAT SECURE THE TABE TO THE ADJUSTABLE PERIPHERY OF THE CAM.

4-45. MODEL RR-T TUNING UNIT. To retrack the reflector voltage of the Model RR-T Tuning Unit, proceed as directed in the following steps:

a. With the Model R unenergized, slide the tuning unit from the basic unit and disconnect P1122 (terminating W1104) from its mating connector.

b. Connect a length of RG-55/U cable between P1122 and the input connector of a frequency meter, as illustrated in figure 4-7.

c. Connect a PRD Model 613-M Crystal Detector (having a built-in d-c return) between the output connector of the frequency meter and the vertical input terminals of an oscilloscope (see figure 4-7).

d. Connect the "reflector" terminals of a Polarad Model MK-1 Klystron Mode Alignment Modulator between J1119 and J1120, as illustrated in figure 4-7. Connect the "h scope" and "gnd" terminals of the modulator to the horizontal input terminals of the oscilloscope. Set the modulator "amp" control fully counterclockwise and the "phase" control to mid-position.

e. Remove the protective phenolic plate from TB1101 and connect the positive probe of a Simpson Model 260 Multimeter (set for 1,000 v) to the terminal marked "R".

f. Remove the shorting strap between the terminals marked "+" and "-" and insert (observing polar-

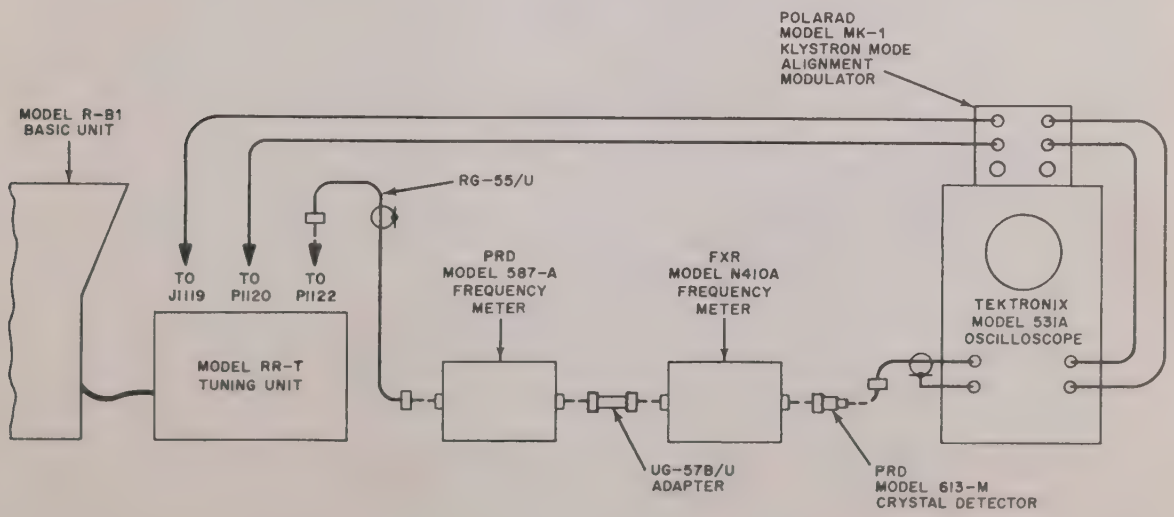


Figure 4-7. Reflector Voltage Tracking, Equipment Setup (Model RR-T Tuning Unit)

ity) a Simpson Model 373 Milliammeter (set for 10 ma) in place of the strap.

g. With AFC ON switch set to "off" and METER SELECTOR switch set to ANODE MA, energize the equipment and allow the Model R to warm up for at least 15 minutes.

h. Set Bias Adj control R1120 to the position which produces an output meter indication of 7 on the linear scale. Lock the shaft nut of this control to maintain this setting.

i. Rotate the TUNING control to position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam (see figure 4-8). The FREQUENCY IN MEGACYCLES dial should read approximately 670.

j. Adjust the modulator "amp" to obtain a mode display similar to that of figure 4-9b. If the mode display is not centered on the oscilloscope screen (figure 4-9a), continue as directed in the following additional steps.

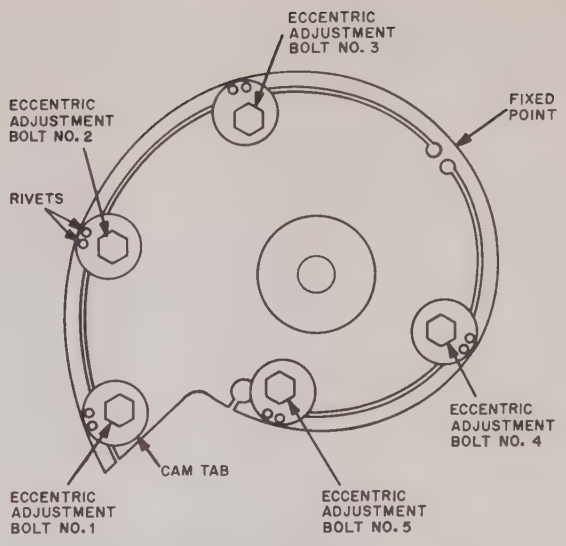


Figure 4-8. Typical Adjustable-Periphery Tuning Cam

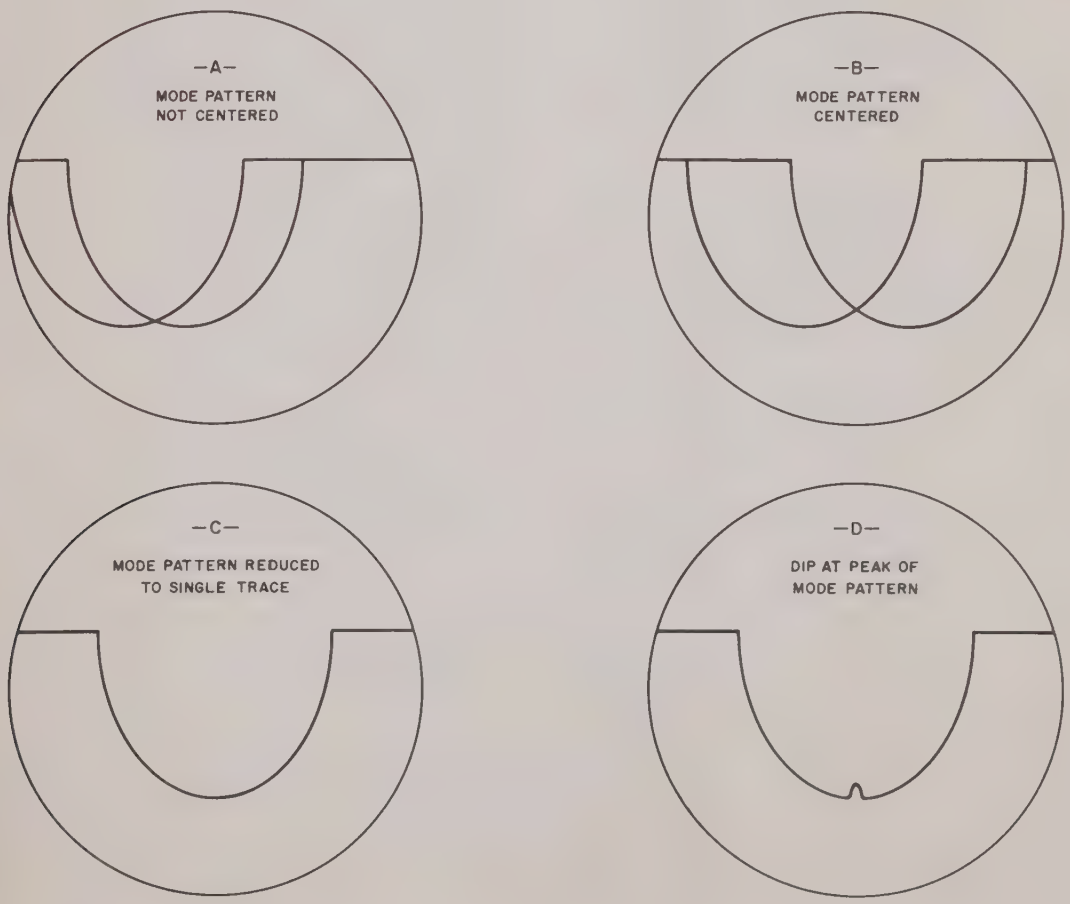


Figure 4-9. Typical Mode Pattern Displays

1. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial reading corresponding to the high end of the band and set High Adj control R1108 to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -155 and -220 volts signifies that the reflex klystron is oscillating in the desired 1-3/4-wave reflector mode (see figure 4-10).

2. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace, as illustrated in figure 4-9c.

3. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial corresponding to the low end of the band and set Low Adj control R1111 to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -5 and -35 volts signifies that the reflex klystron is oscillating in the desired 1-3/4-wave reflector mode (see figure 4-10).

4. Due to interaction between High Adj control R1108 and Low Adj control R1111, it will be necessary to repeat steps 1 and 3 until no further adjustment is required to maintain the displayed mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

k. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace (see figure 4-9c).

l. Rotate the TUNING control throughout the band and observe the mode pattern displayed on the oscilloscope. The pattern should be continuous, remain centered on the oscilloscope screen, and display no splitting at any point.

Note

Should the mode be erratic at any point, set the TUNING control to the point of discontinuity and remove operating power from the Model R. Remove the protective shield from the end collar and loosen the latter with the spanner wrench. Gently twist the base of the reflex klystron tube clockwise, tighten the end collar, and replace the protective shield. Energize the equipment and rescan the band for discontinuities as described in step l.

Since the proper orientation of the tube within the cavity cannot be anticipated, it is suggested that the twisting procedure be performed in 30° increments until continuity throughout the band is achieved.

m. Rotate the TUNING control to again position

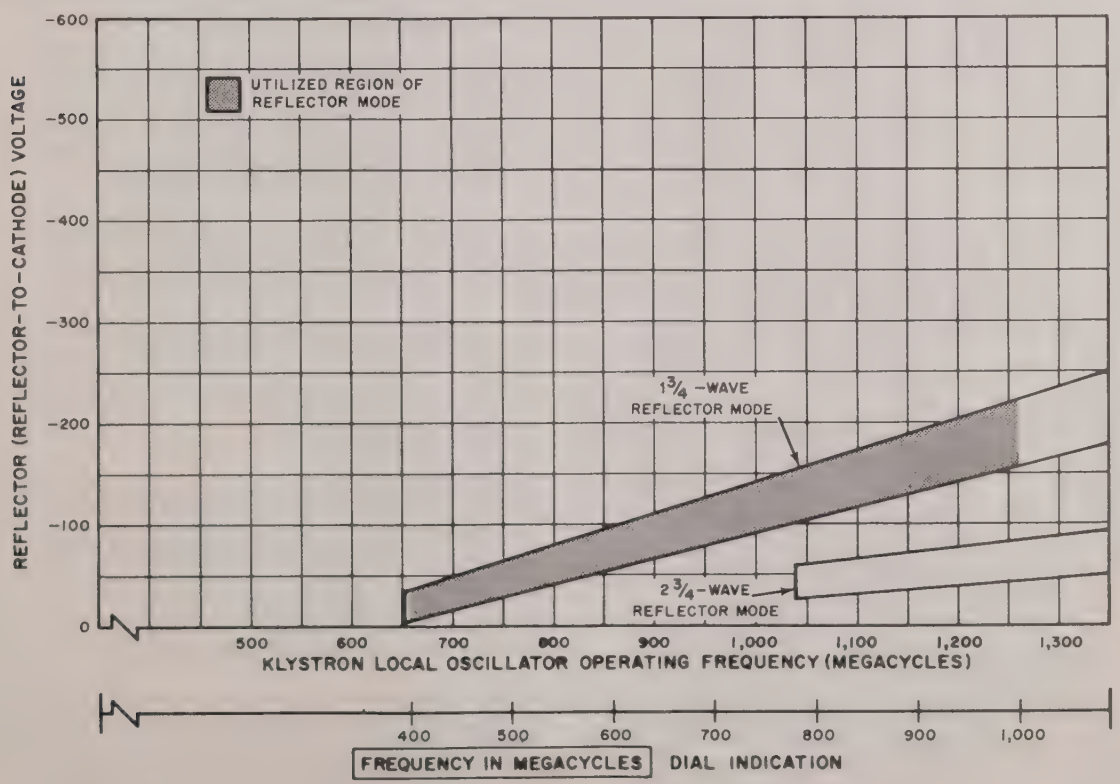


Figure 4-10. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V1101

the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above this indication. Note the oscilloscope display. The "suck-out" due to the frequency meter should be at the peak of the displayed mode, as illustrated in figure 4-9d. If "suck-out" occurs at either side of the mode peak, loosen the setscrew that secures the setting of the shorting plunger coarse tuning adjustment screw and carefully set the latter to obtain the suck-out at the mode peak. Fix the setting of the shorting plunger coarse tuning screw by tightening its setscrew.

n. Rotate the TUNING control so that the oscillator cam follower rests opposite eccentric adjustment bolt no. 1 of the adjustable periphery tuning cam (see figure 4-8). Tune the frequency meter to position the "suck-out" point at the peak of the displayed mode (see figure 4-9d). Note the frequency meter reading. This reading less 260 Mc should be within ±1% of the FREQUENCY IN MEGACYCLES dial indication.

o. Repeat step n for the oscillator cam follower resting opposite eccentric adjustment bolts nos. 2, 3, 4, and 5, in sequence. If the specified accuracy is not achieved at all test points, continue as directed in the following additional steps.

Note

If the error occurs at the high end of the band, loosen, in the sequence stated, the nuts that secure eccentric adjustment bolts no. 1, 2, and 3. If the error is at the low end of the band, loosen, in the order stated, the nuts that secure eccentric adjustment bolts no. 5 and 4.

1. Rotate the TUNING control to position the oscillator cam follower opposite the eccentric adjustment bolt closest to the fixed point of the cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above this reading.

2. Using two open-end wrenches, one placed over the eccentric adjustment bolt and the other over the nut, carefully set the position of the eccentric adjustment bolt so that "suck-out" occurs at the peak of the displayed mode.

3. While maintaining the desired setting of the eccentric adjustment bolt with one wrench, carefully tighten the lock nut.

4. Repeat steps 1 through 3 for the remaining eccentric adjustment bolts.

p. Set Refl Supply Current Adj control R1114 to obtain a milliammeter indication of 7 ma. Lock the shaft nut of this control to maintain this setting.

q. De-energize the equipment and disconnect from the setup of figure 4-7. Remove the voltmeter and milliammeter and replace the strap between the "+" and "-" terminals of TB1101. Replace the protective phenolic plate over the terminal board.

r. De-energize the Model R and set the METER SELECTOR switch to XTAL MA. Rotate the TUNING control throughout the band. Note the output meter indication on the XTAL MA scale. The minimum value of crystal current should not be less than 0.2 ma at any point within the band.

s. De-energize the Model R. Retracking the klystron local oscillator reflector voltage will necessitate retracking the preselector. Refer to paragraph 4-50.

4-46. MODELS RL-T AND RS-T TUNING UNITS. To retrack the reflector voltage in the Models RL-T and RS-T Tuning Units, proceed as directed in the following steps:

Note

The information contained within parenthesis applied to the Model RS-T Tuning Unit, and immediately follows the data which is applicable to the Model RL-T Tuning Unit.

a. With the Model R unenergized, slide the tuning unit out of the basic unit and disconnect P706 (P808) from its mating connector, J706 (J808).

b. Unscrew XCR701 (XCR801) from mixer assembly A702 (A802) and replace CR701 (CR801) with a dummy cartridge diode; one that has been purposely shorted by the removal of its detecting element and its casing filled with solder. Replace XCR701 (XCR801) to mixer assembly A702 (A802).

c. Connect a length of RG-55/U cable between J706 (J808) and the input connector of a frequency meter, as illustrated in figure 4-11 (figure 4-12).

d. Connect a PRD Model 613-M Crystal Detector, which has a built-in d-c return) between the output connector of the frequency meter and the vertical input terminals of an oscilloscope, as illustrated in figure 4-11 (figure 4-12).

e. Connect the "reflector" terminals of a Polarad Model MK-1 Klystron Model Alignment Modulator between J703 and J704 (J803 and J804), as illustrated in figure 4-11 (figure 4-12). Connect the "h scope" and "gnd" terminals of the modulator to the horizontal input terminals of the oscilloscope. Set the modulator "amp" control fully counterclockwise and the "phase" control to mid-position.

f. Remove the protective phenolic plate covering TB701 (TB801) and connect the positive probe of a Simpson Model 260 Multimeter to the terminal labeled "K". Connect the common probe to the terminal labeled "R". Set the multimeter for +1000 V dc.

g. Remove the shorting strap between the termi-

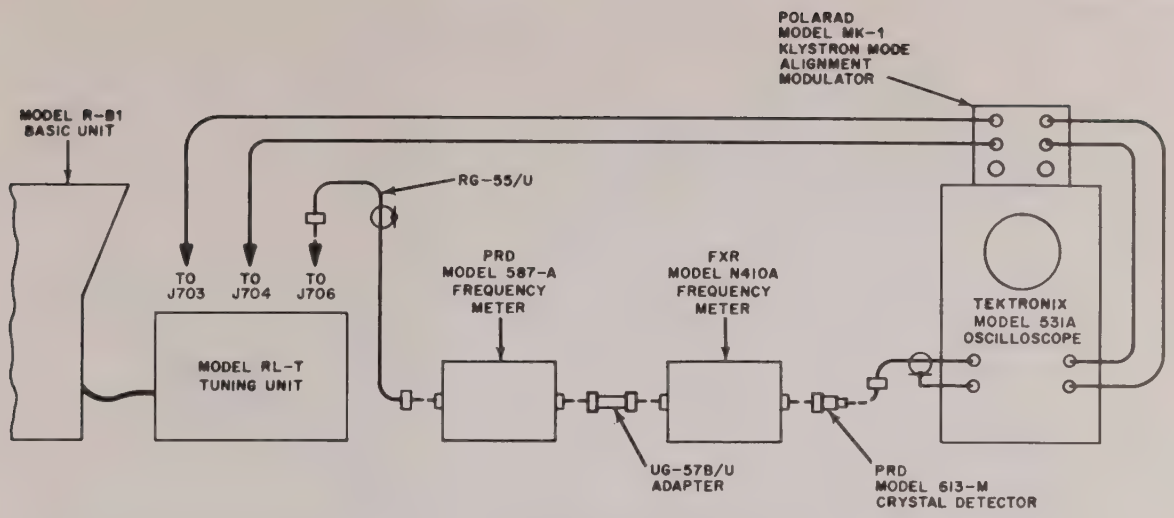


Figure 4-11. Reflector Voltage Tracking, Equipment Setup (Model RL-T Tuning Unit)

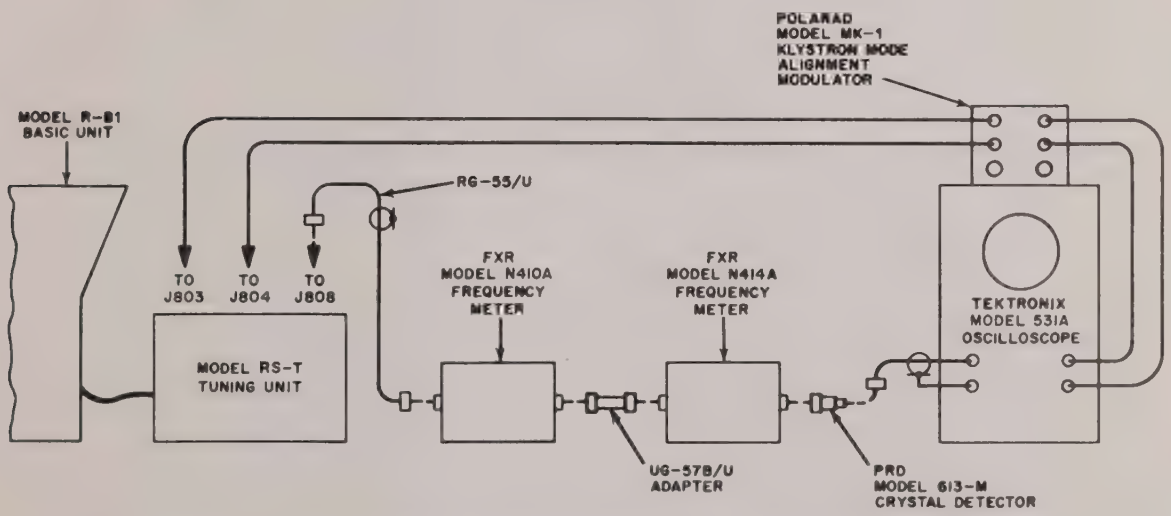


Figure 4-12. Reflector Voltage Tracking, Equipment Setup (Model RS-T Tuning Unit)

nals marked "+" and "-" and, observing polarity, insert a Simpson Model 373 Milliammeter in place of the strap. Set the milliammeter for 10 ma.

h. With AFC ON switch set to "off" and METER SELECTOR switch set to ANODE MA, energize the equipment. Allow the Model R to warm up for at least 15 minutes.

i. Set Bias Adj control R701 (R801) to the position which produces an output meter indication of 7 (7) on the linear scale. Lock the shaft nut of this control to maintain this setting.

j. Rotate the TUNING control to position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam, which is illustrated in figure 4-8. The FREQUENCY IN MEGACYCLES dial should read approximately 1550 (3225).

k. Adjust the modulator "amp" control to obtain a mode display similar to that of figure 4-9b. If the mode display is not centered on the oscilloscope, as illustrated in figure 4-9a, continue as directed in the following additional steps.

1. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the high end of the band and set High Adj control R709 (R809) to center the mode on the oscilloscope

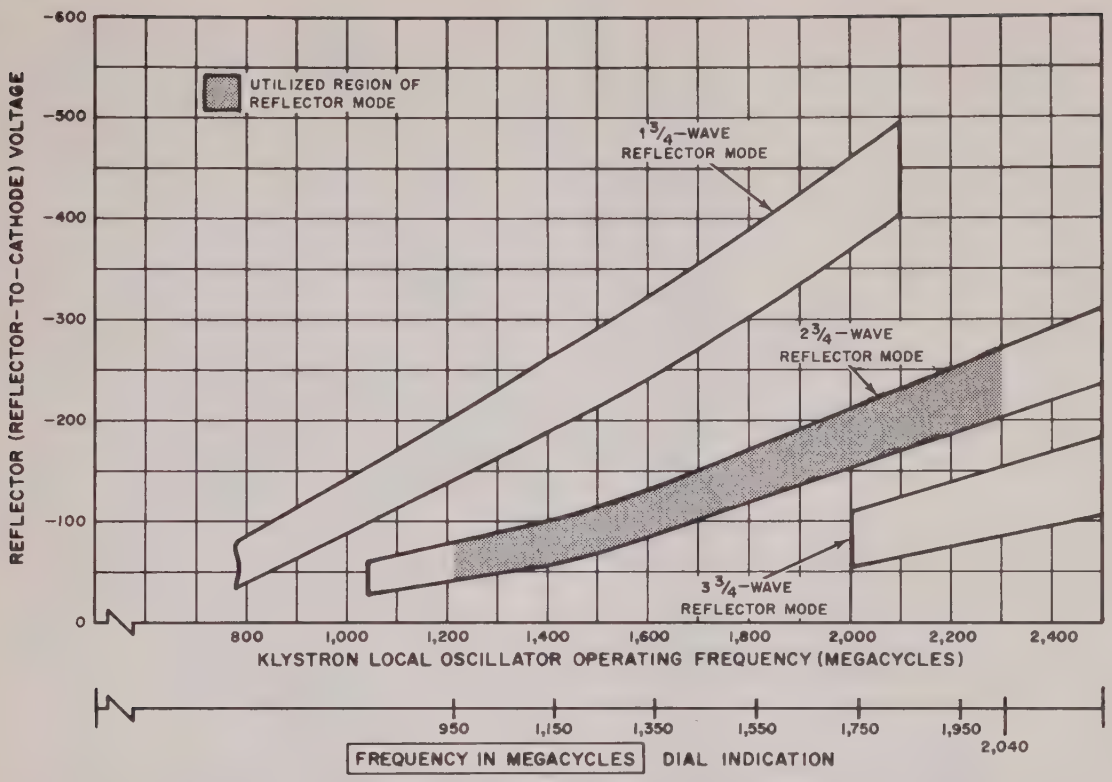


Figure 4-13. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V701

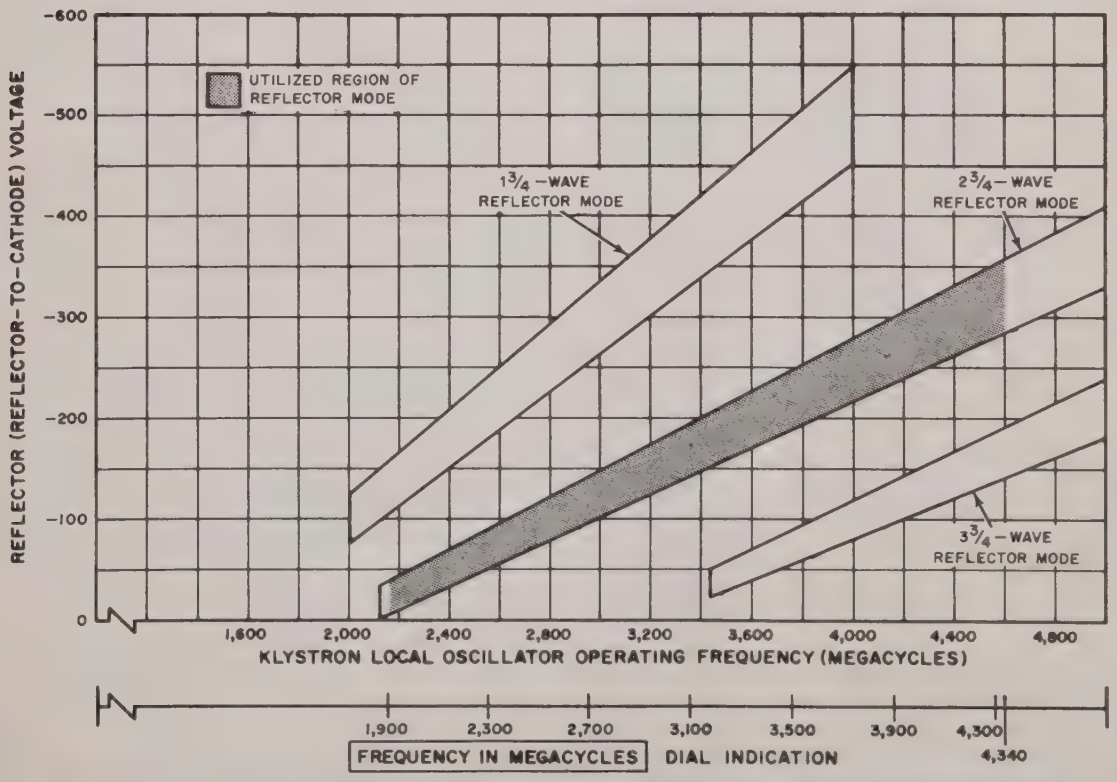


Figure 4-14. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V801

screen. Note the voltmeter indication. A reading within the limits of -200 and -270 volts (-280 and -360 volts) signifies that the reflex klystron is oscillating in the desired 2-3/4-wave (2-3/4-wave) reflector mode. See figure 4-13 (figure 4-14).

2. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace, as illustrated in figure 4-9c.

3. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the low end of the band and set Low Adj control R704 (R804) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -40 and -80 volts (-10 and -35 volts) signifies that the reflex klystron is oscillating in the desired 2-3/4-wave (2-3/4-wave) reflector mode. See figure 4-13 (figure 4-14).

4. Due to interaction between High Adj control R709 (R809) and Low Adj control R704 (R804), it will be necessary to repeat steps 1 and 3 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

l. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace.

m. Rotate the TUNING control throughout the band and observe the mode pattern displayed on the oscilloscope. The pattern should be continuous, remain centered on the screen, and display no splitting at any point. If these conditions are not met, refer to the note following step l of paragraph 4-45.

n. Rotate the TUNING control to again position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above (260 Mc above) this indication. Note the oscilloscope display. The "suck-out" due to the frequency meter should be at the peak of the displayed mode, as illustrated in figure 4-9d. If "suck-out" occurs at either side of the mode peak, loosen the setscrew that secures the setting of the shorting plunger coarse tuning adjustment screw and carefully set the latter to position the "suck-out" at the mode peak. Fix the setting of the shorting plunger coarse tuning screw by tightening its setscrew.

o. Rotate the TUNING control so that the oscillator cam follower rests opposite eccentric adjustment bolt no. 1 of the adjustable-periphery tuning cam. Tune the frequency meter to position the "suck-out" point at the peak of the displayed mode. Note the frequency meter reading. This indication less 260 Mc (less 260 Mc) should be within ±1% of the FREQUENCY IN MEGACYCLES dial indication.

p. Repeat step o for the oscillator cam follower resting opposite eccentric adjustment bolts nos. 2, 3, 4, and 5, in sequence. If the specified accuracy is not achieved at all test points, continue as directed in the following additional steps. See note following step o of paragraph 4-45.

1. Rotate the TUNING control to position the oscillator cam follower opposite the eccentric adjustment bolt closest to the fixed point of the cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above (260 Mc above) this indication.

2. Using two open-end wrenches, one placed on the eccentric adjustment bolt and the other placed on the nut, carefully set the position of the eccentric adjustment bolt so that "suck-out" occurs at the peak of the displayed mode.

3. While maintaining the desired setting of the eccentric adjustment bolt with one wrench, carefully tighten the lock nut.

4. Repeat steps 1 through 3 for the remaining eccentric adjustment bolts.

q. Set Refl. Supply Current Adj control R717 (R817) to obtain a milliammeter indication of 7 (7) ma. Lock the shaft nut of this control to maintain this setting.

r. De-energize the equipment and disconnect from the setup of figure 4-11 (figure 4-12). Remove the voltmeter and milliammeter and replace the strap between the "+" and "-" terminals of TB701 (TB801). Replace the protective phenolic plate over the terminal board.

s. Replace the dummy crystal with the operative diode removed in step b, replace the crystal holder, and connect P706 (P808) to J706 (J808).

t. Re-energize the Model R and set the METER SELECTOR switch to XTAL MA. Rotate the TUNING control throughout the band. Note the output meter indication on the XTAL MA scale. The minimum value of crystal current should not be less than 0.2 ma (0.2 ma) at any point within the band.

u. De-energize the Model R. Retracking the klystron local oscillator reflector voltage will necessitate retracking the preselector. Refer to paragraph 4-50.

4-47. MODELS RM-T AND RKS-T TUNING UNITS. To retrack the reflector voltage in the Models RM-T and RKS-T Tuning Units, proceed as directed in the following steps:

Note

The information contained within parenthesis applies to the Model RKS-T Tuning Unit, and immediately follows the data which is applicable to the Model RM-T Tuning Unit.

a. With the Model R unenergized, slide the tuning unit from the basic unit and disconnect P902 (P1106)

from its mating connector, J902 (J1106).

b. Unscrew XCR901 (XCR901) from mixer assembly A902 (A902) and replace CR901 (CR901) with a dummy cartridge diode; one that has been purposely shorted by the removal of its detecting element and its casing filled with solder. Replace XCR901 (XCR901) to mixer assembly A902 (A902).

c. Connect a length of RG-55/U cable between P902 (P1106) and the input connector of a frequency meter, as illustrated in figure 4-15.

d. Connect a PRD Model 613-M Crystal Detector, which has a built-in d-c return, between the output of the frequency meter and the vertical input terminals of an oscilloscope, as illustrated in figure 4-15.

e. Connect the "reflector" terminals of a Polarad Model MK-1 Klystron Model Alignment Modulator between J903 and J904 (J903 and J904), as illustrated in figure 4-15. Connect the "h scope" and "gnd" terminals of the modulator to the horizontal input terminals of the oscilloscope. Set the modulator "amp" control fully counterclockwise and the "phase" control to mid-position.

f. Remove the protective phenolic plate covering TB901 (TB901) and connect the positive probe of a Simpson Model 260 Mutlimeter to the terminal labeled "K". Connect the common probe to the terminal marked "R". Set the multimeter for +1000 V dc.

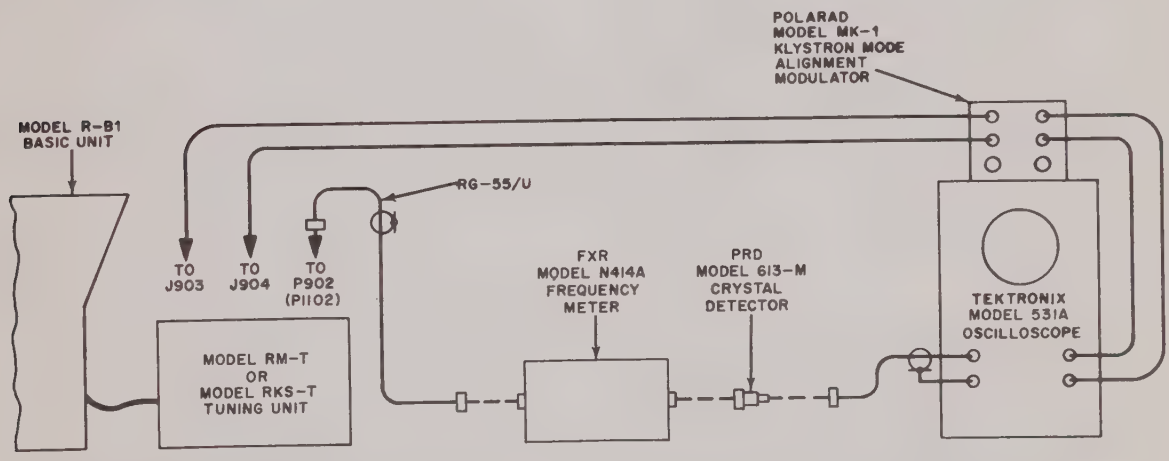


Figure 4-15. Reflector Voltage Tracking, Equipment Setup (Models RM-T and RKS-T Tuning Units)

g. Remove the shorting strap between the terminals marked "+" and "-" and, observing polarity, insert a Simpson Model 373 Milliammeter in place of the strap. Set the milliammeter for 10 ma (10 ma).

h. With the AFC ON switch set to "off" and the METER SELECTOR switch set to ANODE MA, energize the equipment. Allow the Model R to warm up for at least 15 minutes.

i. Set Bias Adj control R901 (R901) to the position which produces an output meter indication of 5 (5) on the linear scale. Lock the shaft nut of the control to maintain this setting.

j. Rotate the TUNING control to position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam, which is illustrated in figure 4-8. The FREQUENCY IN MEGACYCLES dial should read approximately 6180 (12, 200).

k. Adjust the modulator "amp" control to obtain a mode display similar to that of figure 4-9b. If the mode display is not centered on the oscilloscope, as illustrated in figure 4-9a, continue as directed in the following additional steps:

1. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the high end of the band and set High Adj control R908 (R908) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -500 and -600 volts (-465 and -575 volts) signifies that the reflex klystron is oscillating in the desired 3-3/4-wave (3-3/4-wave) reflector mode. See figure 4-16 (figure 4-17).

2. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace, as illustrated in figure 4-9c.

3. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the low end of the band and set Low Adj control R904 (R904) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -110 and -185 volts (-125 and -200 volts) signifies that the reflex klystron is oscillating in the desired 2-3/4-wave (2-3/4-wave) reflector mode. See figure 4-16 (figure 4-17).

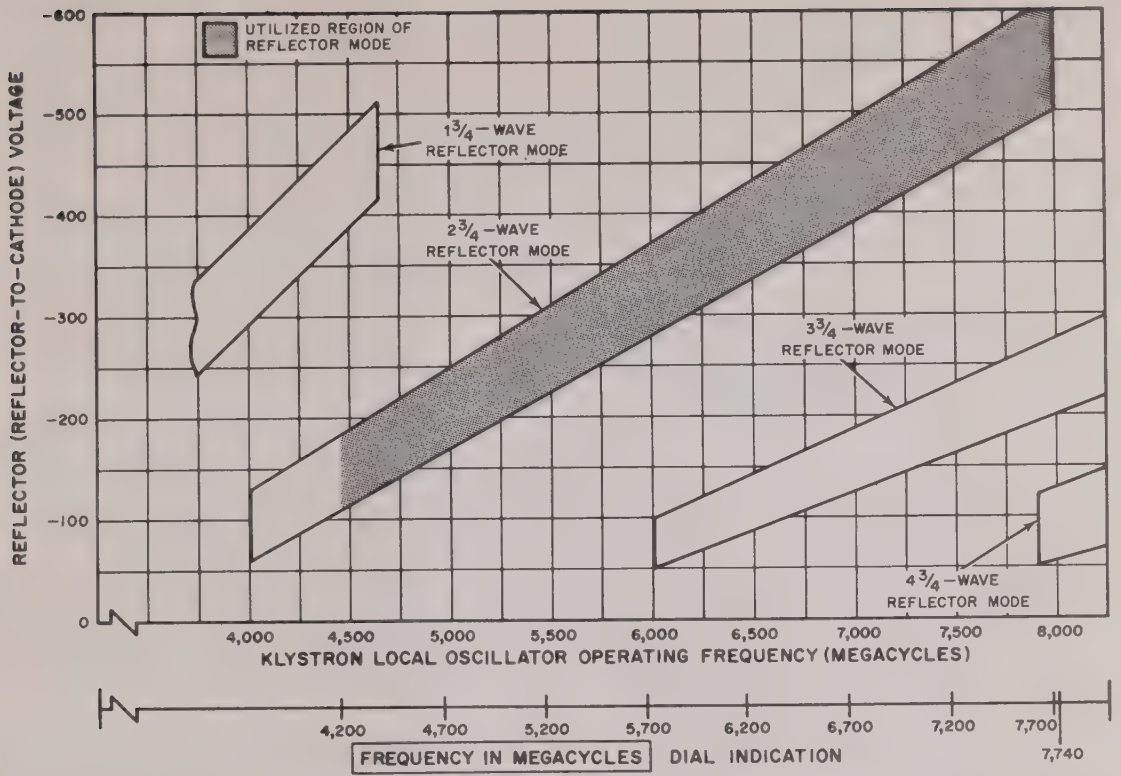


Figure 4-16. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V901

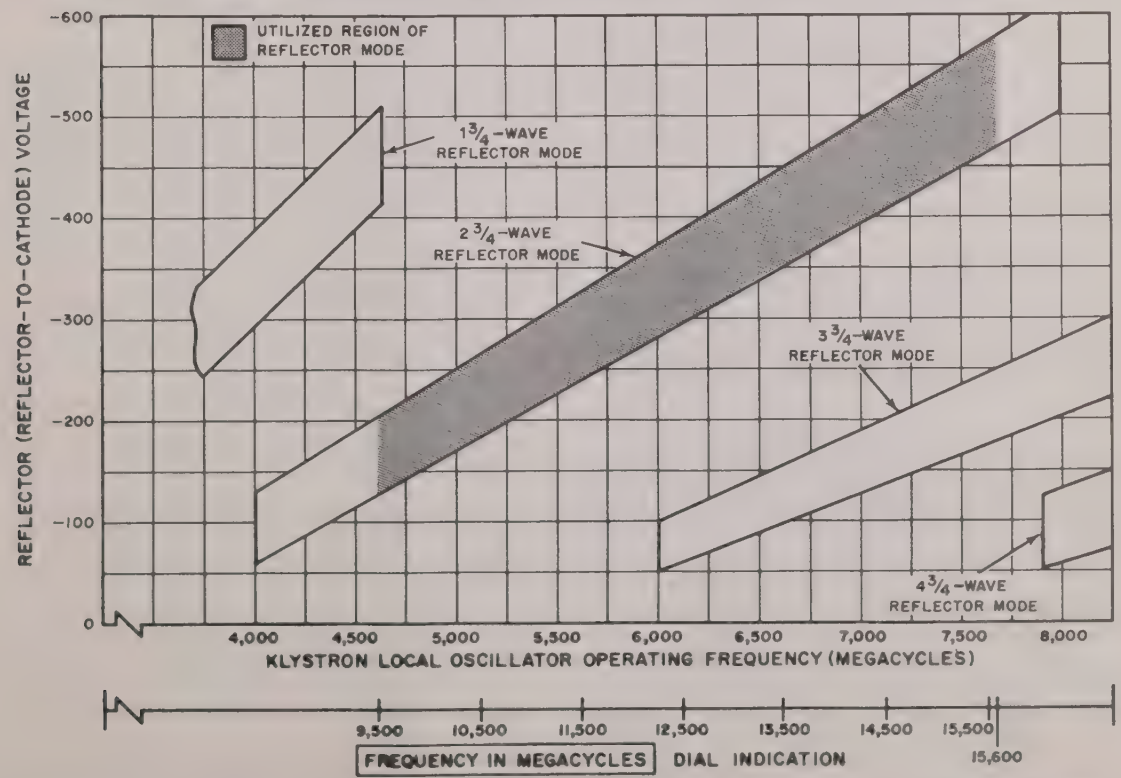


Figure 4-17. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V901

4. Due to interaction between High Adj control R908 (R908) and Low Adj control R904 (R904), it will be necessary to repeat steps 1 and 3 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

l. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace.

m. Rotate the TUNING control throughout the band and observe the mode pattern displayed on the oscilloscope. The pattern should be continuous, remain centered on the screen, and display no splitting at any point. If these conditions are not met, refer to the note following step l of paragraph 4-45.

n. Rotate the TUNING control to again position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above this indication (one-half the dial indication less 130 Mc). Note the oscilloscope display. The "suck-out" due to the frequency meter should be at the peak of the displayed mode, as illustrated in figure 4-9d. If "suck-out" occurs at either side of the mode peak, loosen the setscrew that secures the setting of the shorting plunger coarse tuning adjustment screw and carefully set the latter to position the "suck-out" at the mode peak. Fix the setting of the shorting plunger coarse tuning screw by tightening its setscrew.

o. Rotate the TUNING control so that the oscillator cam follower rests opposite eccentric adjustment bolt no. 1 of the adjustable-periphery tuning cam. Tune the frequency meter to position the "suck-out" point at the peak of the displayed mode. Note the frequency meter reading. This indication less 260 Mc (twice this indication plus 260 Mc) should be within ±1% of the FREQUENCY IN MEGACYCLES dial indication.

p. Repeat step o for the oscillator cam follower resting opposite eccentric adjustment bolts nos. 2, 3, 4, and 5, in sequence. If the specified accuracy is not achieved at all test points, continue as directed in the following additional steps. See note following step o of paragraph 4-45.

1. Rotate the TUNING control to position the oscillator cam follower opposite the eccentric adjustment bolt closest to the fixed point of the cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc above this indication (one-half the dial indication less 130 Mc).

2. Using two open-end wrenches, one placed on the eccentric adjustment bolt and the other placed on the nut, carefully set the position of the eccentric adjustment bolt so that "suck-out" occurs at the peak of the displayed mode.

3. While maintaining the desired setting of the eccentric adjustment bolt with one wrench, carefully tighten the lock nut.

4. Repeat steps 1 through 3 for the remaining eccentric adjustment bolts.

q. Set Refl Supply Current Adj control R916 (R916) to obtain a milliammeter indication of 7 (7) ma. Lock the shaft nut of this control to maintain this setting.

r. De-energize the equipment and disconnect from the setup of figure 4-15. Remove the voltmeter and milliammeter and replace the strap between the "+" and "-" terminals of TB901 (TB901). Replace the protective phenolic plate over the terminal board.

s. Replace the dummy crystal with the operative diode removed in step b, replace the crystal holder, and connect P902 (P1106) to J902 (J1106).

t. Re-energize the Model R and set the METER SELECTOR switch to XTAL MA. Rotate the TUNING control throughout the band. Note the output meter indication on the XTAL MA scale. The minimum value of crystal current should not be less than 0. 2 ma (0. 2 ma) at any point within the band.

u. De-energize the Model R. Retracking the klystron local oscillator reflector voltage will necessitate retracking of the Model RM-T Tuning Unit preselector. Refer to paragraph 4-50.

4-48. MODELS RX-T AND RKU-T TUNING UNITS. To retrack the reflector voltage in the Models RX-T and RKU-T Tuning Units, proceed as directed in the following steps:

Note

The information contained within parenthesis applies to the Model RKU-T Tuning Unit, and immediately follows the data which is applicable to the Model RX-T Tuning Unit.

a. With the Model R unenergized, slide the tuning unit from the basic unit.

b. Connect a male type N connector to one end of a 3 foot length of RG-55/U cable. Form a coupling loop at the other end of the cable by stripping 1/2 inch of dielectric and braid from the cable. Bend the center conductor back in the shape of a U and solder end of center conductor to braid.

c. Insert the loop end of the cable approximately 3/4 of the way into one of the open cavity pipes. Couple the type N connector to a frequency meter, as illustrated in figure 4-18.

d. Connect a PRD Model 613-M Crystal Detector, which has a built-in d-c return, between the output of the frequency meter and the vertical input terminals of an oscilloscope, as illustrated in figure 4-18.

e. Connect the "reflector" terminals of a Polarad Model MK-1 Klystron Model Alignment Modulator between J1003 and J1004 (J1003 and J1004), as illus-

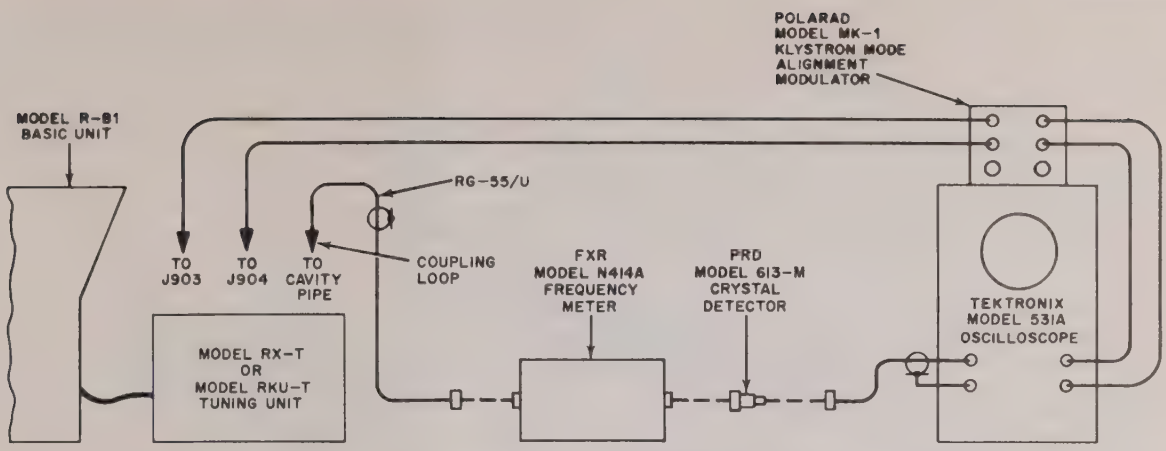


Figure 4-18. Reflector Voltage Tracking, Equipment Setup (Models RX-T and RKU-T Tuning Units)

trated in figure 4-18. Connect the "h scope" and "gnd" terminals of the modulator to the horizontal input terminals of the oscilloscope. Set the modulator "amp" control fully counterclockwise and the "phase" control to mid-position.

f. Remove the protective phenolic plate covering TB1001 (TB1001) and connect the positive probe of a Simpson Model 260 Mutlimeter to the terminal labeled "K". Connect the common probe to the terminal marked "R". Set the multimeter for +1000 volts dc.

g. Remove the shorting strap between the terminals marked "+" and "-" and, observing polarity, insert a Simpson Model 373 Milliammeter in place of the strap. Set the milliammeter for 10 ma (10 ma).

h. With the AFC ON switch set to "off" and the METER SELECTOR switch set to ANODE MA, energize the equipment. Allow the Model R to warm up for at least 15 minutes.

i. Set Bias Adj control R1001 (R1001) to the position which produces an output meter indication of 5 (5) on the linear scale. Lock the shaft nut of this control to maintain this setting.

j. Rotate the TUNING control to position the oscillator cam follower at the fixed point of the adjustable periphery tuning cam, which is illustrated in figure 4-8. The FREQUENCY IN MEGACYCLES dial should read approximately 9, 500 (19, 100).

k. Adjust the modulator "amp" control to obtain a mode display similar to that of figure 4-9b. If the mode display is not centered on the oscilloscope screen, as illustrated in figure 4-9a, continue as directed in the following additional steps:

1. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the high end of the band and set High Adj control R1009 (R1009) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -230 and -300 volts (-220 and -290 volts) signifies that the reflex klystron is oscillating in the desired 4-3/4-wave (4-3/4-wave) reflector mode. See figure 4-19 (figure 4-20).

2. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace, as illustrated in figure 4-9c.

3. Rotate the TUNING control to obtain a FREQEUNCY IN MEGACYCLES dial indication of 9700 (19, 150), a frequency slightly above the mode switching point, and set TR2 control R1010 (R1010) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -135 and -235 volts (-135 and -230 volts) signifies that the reflex klystron is oscillating in the desired 4-3/4-wave (4-3/4-wave) reflector mode. See figure 4-19 (figure 4-20).

4. Due to interaction between High Adj control R1009 (R1009) and TR2 control R1010 (R1010), it will be necessary to repeat steps 1 and 3 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

5. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication corresponding to the low end of the band and set Low Adj control R1005 (R1005) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -165 and -230 volts (-175 and -240 volts) signifies that the reflex klystron is oscillating in the desired 3-3/4-wave (3-3/4-wave) reflector mode. See figure 4-19 (figure 4-20).

6. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication of 9500 (18, 900), a frequency slightly below the mode switching point, and set TR1 control R1007 (R1007) to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -300

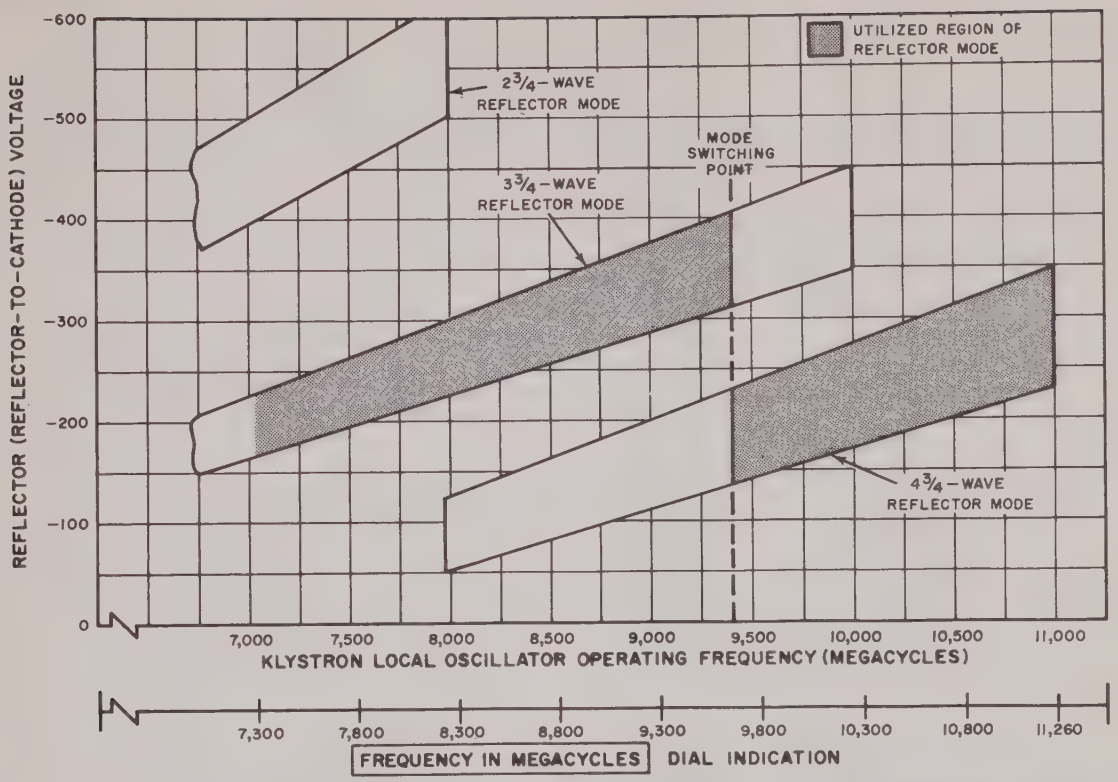


Figure 4-19. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V1001

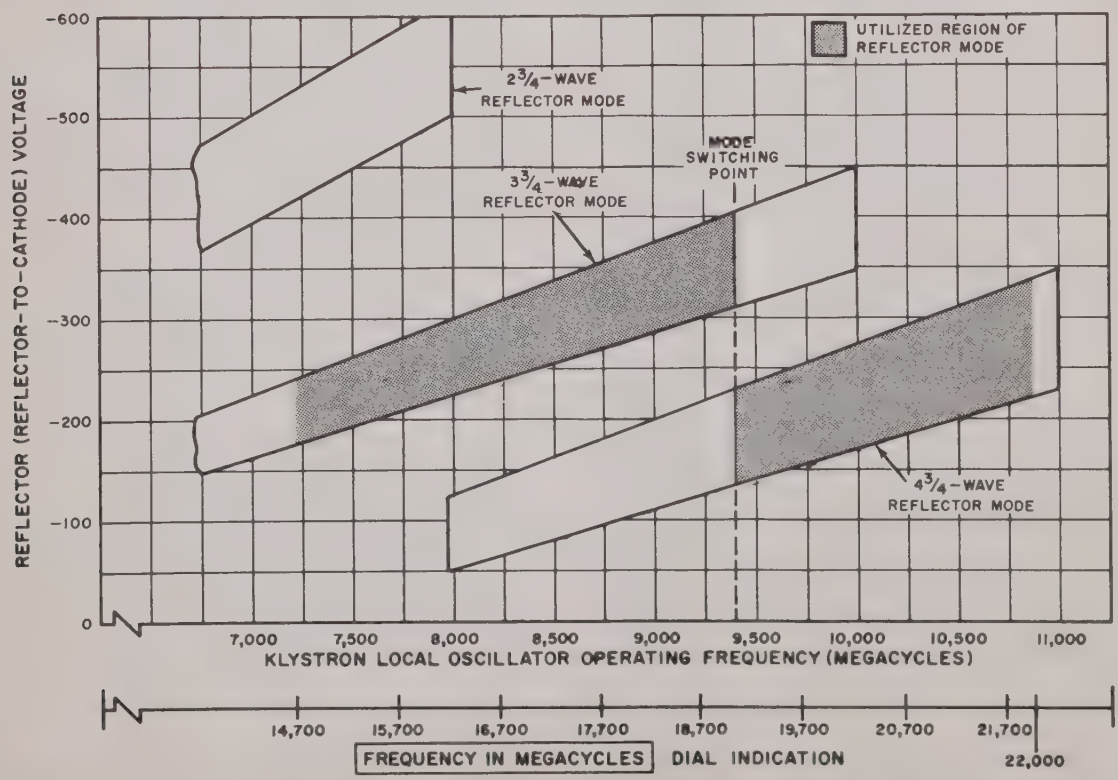


Figure 4-20. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V1001

and -395 volts (-305 and -400 volts) signifies that the reflex klystron is oscillating in the desired 3-3/4-wave (3-3/4-wave) reflector mode. See figure 4-19 (figure 4-20).

7. Due to interaction between Low Adj control R1009 (R1009) and TR1 control R1007 (R1007), it will be necessary to repeat steps 5 and 6 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

m. Rotate the TUNING control throughout the band and observe the mode pattern displayed on the oscilloscope. The pattern should be continuous, remain centered on the screen, and display no splitting at any point. If these conditions are not met, refer to the note following step l of paragraph 4-45.

n. Rotate the TUNING control to again position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc below this indication (one-half the dial indication less 130 Mc). Note the oscilloscope display. The "suck-out" due to the frequency meter should be at the peak of the displayed mode, as illustrated in figure 4-9d. If "suck-out" occurs at either side of the mode peak, loosen the setscrew that secures the setting of the shorting plunger coarse tuning adjustment screw and carefully set the latter to position the "suck-out" at the mode peak. Fix the setting of the shorting plunger coarse tuning screw by tightening its setscrew.

o. Rotate the TUNING control so that the oscillator cam follower rests opposite eccentric adjustment bolt no. 1 of the adjustable-periphery tuning cam. Tune the frequency meter to position the "suck-out" point at the peak of the displayed mode. Note the frequency meter indication. This reading plus 260 Mc (twice this reading plus 260 Mc) should be within ±1% of the FREQUENCY IN MEGACYCLES dial indication.

p. Repeat step o for the oscillator cam follower resting opposite eccentric adjustment bolts nos. 2, 3, 4, and 5, in sequence. If the specified accuracy is not achieved at all test points, continue as directed in the following additional steps. See note following step o of paragraph 4-45.

1. Rotate the TUNING control to position the oscillator cam follower opposite the eccentric adjustment bolt closest to the fixed point of the cam. Note the FREQUENCY IN MEGACYCLES dial indication and tune the frequency meter to 260 Mc below this indication (one-half the dial indication less 130 Mc).

2. Using two open-end wrenches, one placed on the eccentric adjustment bolt and the other placed on the nut, carefully set the position of the eccentric adjustment bolt so that "suck-out" occurs at the peak of the displayed mode.

3. While maintaining the desired setting of the eccentric adjustment bolt with one wrench, carefully tighten the lock nut.

4. Repeat steps 1 through 3 for the remaining eccentric adjustment bolts.

q. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication near the high end of the band and set Reflector Current Adjust High control R1020 (R1020) to obtain a milliammeter indication of 7 (7) ma. Lock the shaft nut of this control to maintain this setting.

r. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication near the low end of the band and set Reflector Current Adjust Low control R1018 (R1018) to obtain a milliammeter indication of 7 (7) ma. Lock the shaft nut of this control to maintain this setting.

s. De-energize the equipment and disconnect from the setup of figure 4-18. Remove the voltmeter and milliammeter and replace the strap between the "+" and "-" terminals of TB1001 (TB1001). Replace the protective phenolic plate over the terminal board.

t. Re-energize the Model R and set the METER SELECTOR switch to XTAL MA. Rotate the TUNING control throughout the band. Note the output meter indication on the XTAL MA scale. The minimum value of crystal current should not be less than 0. 2 ma (0. 2 ma) at any point within the band.

u. De-energize the Model R. Retracking the klystron local oscillator reflector voltage will necessitate retracking of the Model RX-T Tuning Unit preselector. Refer to paragraph 4-50.

4-49. MODEL RQ-T TUNING UNIT. To retrack the reflector voltage in the Model RQ-T Tuning Unit, proceed as directed below:

a. With the Model R unenergized, slide the tuning unit from the basic unit and perform steps b and c of paragraph 4-22.

b. Connect a length of flexible waveguide between the output flange of the oscillator assembly and the input glange of a frequency meter, as illustrated in figure 4-21.

c. Connect a Waveline Model 7516 Crystal Mount between the output of the frequency meter and the vertical input terminals of an oscilloscope, as illustrated in figure 4-21.

d. Connect the "reflector" terminals of a Polarad Model MK-1 Klystron Mode Alignment Modulator between J1203 and J1204, as illustrated in figure 4-21. Connect the "h scope" and "gnd" terminals of the modulator to the horizontal input terminals of the oscilloscope. Set the modulator "amp" control fully counterclockwise and the "phase" control to mid-position.

e. Remove the protective phenolic plate covering TB1201 and connect the positive probe of a Simpson Model 260 Multimeter to the terminal marked "K".

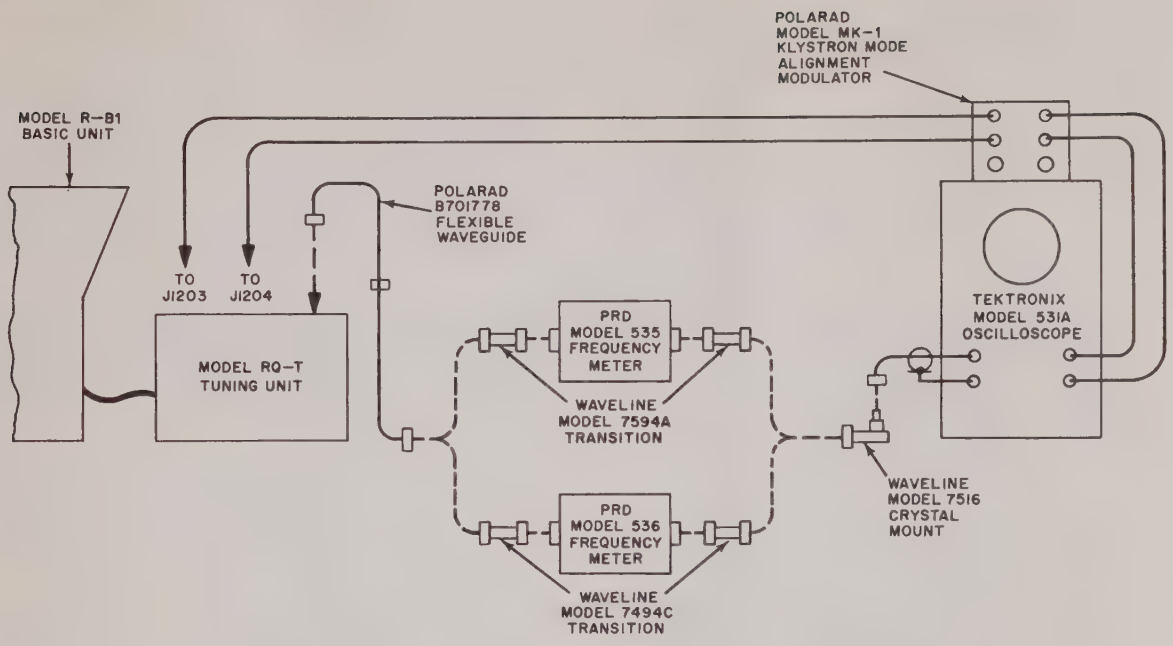


Figure 4-21. Reflector Voltage Tracking, Equipment Setup (Model RQ-T Tuning Unit)

Connect the common probe to the terminal marked "R". Set the multimeter for +1000 volts dc.

f. Remove the shorting strap between the terminals marked "+" and "-" and insert (observing polarity) a Simpson Model 373 Milliammeter (set for 10 ma) in place of the strap.

g. With the AFC ON switch set to "off" and the METER SELECTOR switch set to ANODE MA, energize the equipment. Allow the Model R to warm up for at least 15 minutes.

h. Note the output meter indication on the linear scale. It should read between 7 and 8.

i. Rotate the TUNING control to position the oscillator cam follower at the fixed point of the adjustable periphery tuning cam, which is illustrated in figure 4-8. The FREQUENCY IN KILOMEGACYCLES dial should read approximately 26.26 on the low frequency scale.

j. Adjust the modulator "amp" control to obtain a mode display similar to that of figure 4-9b. (The displayed mode may be split. If this is the case, tune the frequency meter to one-half the FREQUENCY IN KILOMEGACYCLES low-frequency dial indication less 130 Mc and note the mode in which "suck-out" appears. Loosen the single setscrew that secures the mode suppressor pin and adjust the suppressor pin to eliminate the spurious mode. Scan the band and, if necessary, readjust the setting of the mode suppressor pin so that no spurious mode appears within the band. Tighten the setscrew to maintain this setting of the mode suppressor pin. If the mode display is not centered on the oscilloscope screen, as illustrated in figure 4-9a, continue as directed in the following additional steps:

1. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication corresponding to the high end of the band and set High Adjust control R1204 to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -275 and -315 volts signifies that the reflex klystron is oscillating in the desired 4-3/4-wave reflector mode. See figure 4-22.

2. Adjust the modulator "phase" control to superimpose the two traces so that they appear as a single trace, as illustrated in figure 4-9c.

3. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication of 26.3 on the low frequency scale (a frequency slightly above the mode switching point) and set TR2 control R1210 to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -125 and -185 volts signifies that the reflex klystron is oscillating in the desired 4-3/4-wave reflector mode. See figure 4-22.

4. Due to interaction between High Adjust control R1204 and TR2 control R1210, it will be necessary to repeat steps 1 and 3 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

5. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication corresponding to the low end of the band and set Low Adjust control R1208 to center the mode on the oscil-

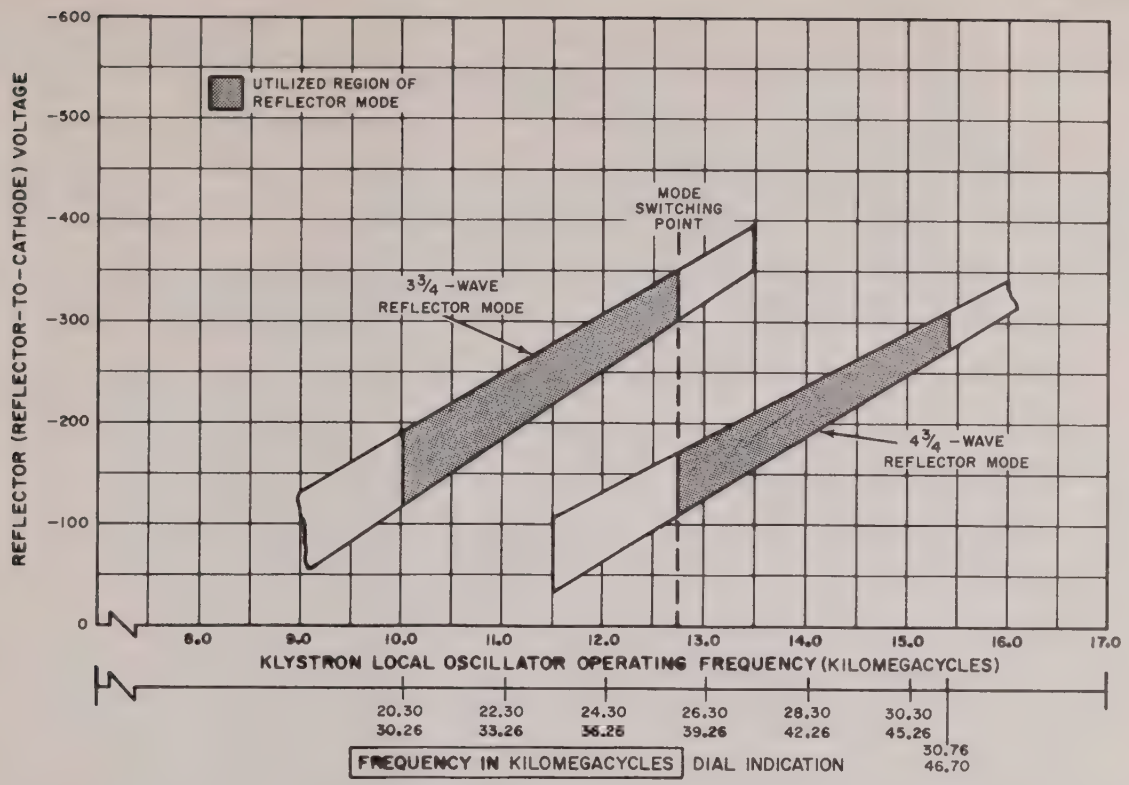


Figure 4-22. Frequency-Reflector Voltage Characteristic Curve, Klystron Local Oscillator V1201

loscope screen. Note the voltmeter indication. A reading within the limits of -115 and -190 volts signifies that the reflex klystron is oscillating in the desired 3-3/4-wave reflector mode. See figure 4-22.

6. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication of 25.3 on the low frequency scale (a frequency slightly below the mode switching point) and set TR1 control R1206 to center the mode on the oscilloscope screen. Note the voltmeter indication. A reading within the limits of -280 and -340 volts signifies that the reflex klystron is oscillating in the desired 3-3/4-wave reflector mode. See figure 4-22.

7. Due to interaction between Low Adjust control R1208 and TR1 control R1206, it will be necessary to repeat steps 5 and 6 until no further adjustment of these controls is required to maintain the mode at the center of the oscilloscope screen. Lock the shaft nuts of these controls to maintain their settings.

k. Rotate the TUNING control throughout the band and observe the mode pattern displayed on the oscilloscope. The pattern should be continuous, remain centered on the screen, and display no splitting at any point.

l. Rotate the TUNING control to again position the oscillator cam follower at the fixed point of the adjustable-periphery tuning cam. Note the FREQUENCY IN KILOMEGACYCLES dial indication and tune the frequency meter to one-half this reading less 130 Mc. Note the oscilloscope display. The "suck-out" due to the frequency meter should be at the peak of the displayed mode, as illustrated in figure 4-9d. If "suck-out" occurs at either side of the mode peak, loosen the setscrew that secures the setting of the shorting plunger coarse tuning adjustment screw and carefully set the latter to position the "suck-out" at the mode peak. Fix the setting of the shorting plunger coarse tuning screw by tightening its setscrew.

m. Rotate the TUNING control so that the oscillator cam follower rests opposite eccentric adjustment bolt no. 1 of the adjustable-periphery tuning cam. Tune the frequency meter to position the "suck-out" point at the peak of the displayed mode. Note the frequency meter indication. Twice this reading plus 260 Mc should be within ±1% of the FREQUENCY IN KILOMEGACYCLES low frequency scale indication.

n. Repeat step m for the oscillator cam follower resting opposite eccentric adjustment bolts nos. 2, 3, 4, and 5, in sequence. If the specified accuracy is not achieved at all test points, proceed as directed in the following additional steps. (See note following step o of paragraph 4-45.)

1. Rotate the TUNING control to position the oscillator cam follower opposite the eccentric adjustment bolt closest to the foxed point of the cam. Note

the FREQUENCY IN KILOMEGACYCLES dial indication on the low frequency scale and tune the frequency meter to one-half this indication less 130 Mc.

2. Using two open-end wrenches, one placed on the eccentric adjustment bolt and the other placed on the nut, carefully set the position of the eccentric adjustment bolt so that "suck-out" occurs at the peak of the displayed mode.

3. While maintaining the desired setting of the eccentric adjustment bolt with one wrench, carefully tighten the lock nut.

4. Repeat steps 1 through 3 for the remaining eccentric adjustment bolts.

o. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication near the high end of the band and set Reflector Current High Adjust control R1221 to obtain a milliammeter indication of 7 ma. Lock the shaft nut of this control to maintain this setting.

p. Rotate the TUNING control to obtain a FREQUENCY IN KILOMEGACYCLES dial indication near the low end of the band and set Reflector Current Low Adjust control R1220 to obtain a milliammeter indication of 7 ma. Lock the shaft nut of this control to maintain this setting.

q. De-energize the equipment and disconnect from the setup of figure 4-21. Remove the voltmeter and milliammeter and replace the strap between the "+" and "-" terminals of TB1201.

r. Perform steps o and p of paragraph 4-42.

s. Re-energize the Model R and set the METER SELECTOR switch to XTAL MA. Rotate the TUNING control throughout the band and note the output meter indication on the XTAL MA scale. The minimum value of crystal current should not be less than 0.2 ma at any point within the band.

t. De-energize the Model R.

4-50. PRESELECTOR, RETRACKING.

4-51. Replacement of the first local oscillator reflex klystron tube and/or retracking of its reflector voltage will necessitate retracking of the preselector. The procedure for retracking the preselector (employed only in the Models RR-T, RL-T, RS-T, RM-T, and RX-T Tuning Units) is described in the following steps:

a. With the Model R unenergized, set the controls as indicated in table 4- and slide the tuning unit from the basic unit.

b. Energize the Model R and allow the equipment to warm up for at least 15 minutes.

c. Rotate the TUNING control to obtain a FREQUENCY IN MEGACYCLES dial indication at the high end of the band.

d. Adjust the MANUAL GAIN control to obtain an output meter indication of 1 on the linear scale.

e. Set a microwave signal generator for a cw output of approximately -70 dbm at the frequency indicated on the FREQUENCY IN MEGACYCLES dial. Couple the signal generator to the RF INPUT connector through a length of RG-9/U cable.

f. Adjust each of the preselector coarse tuning adjustment screws to obtain a maximum output meter indication. Reduce the signal generator output level if the output meter pointer deflects to an off-scale indication.

g. Rotate the TUNING control counterclockwise to position the preselector rocker arm rollers directly beneath the nearest set of fine tuning adjustment screws. Tune the signal generator to the frequency indicated on the FREQUENCY IN MEGACYCLES dial and adjust the pair of fine tuning adjustment screws to obtain a maximum output meter indication.

h. Repeat step g for the remaining sets of preselector fine tuning adjustment screws.

i. After the preselector has been aligned, determine the sensitivity (signal plus noise equal to twice noise) at various points within the band.

j. De-energize and disconnect the equipment.

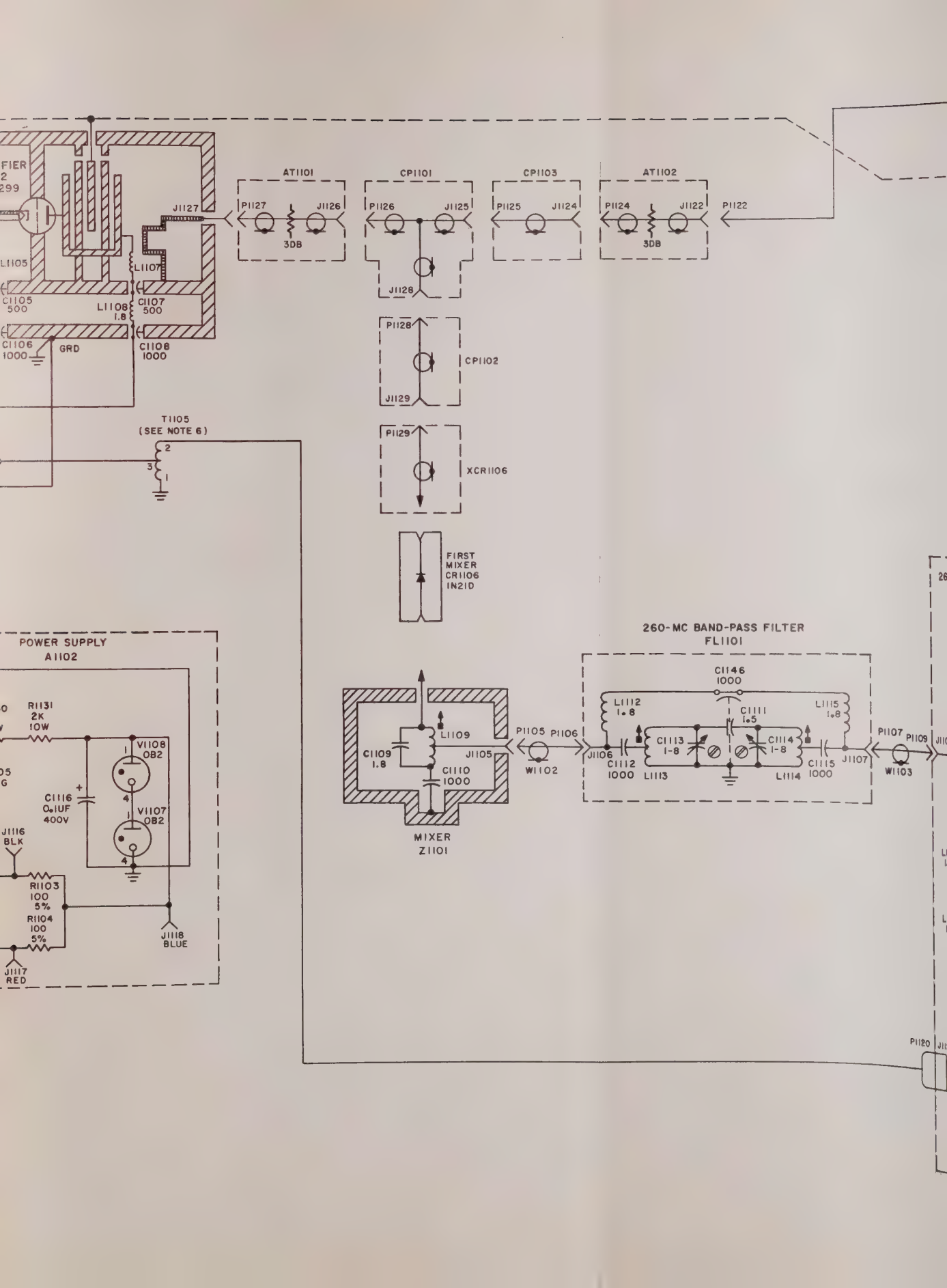
SECTION V

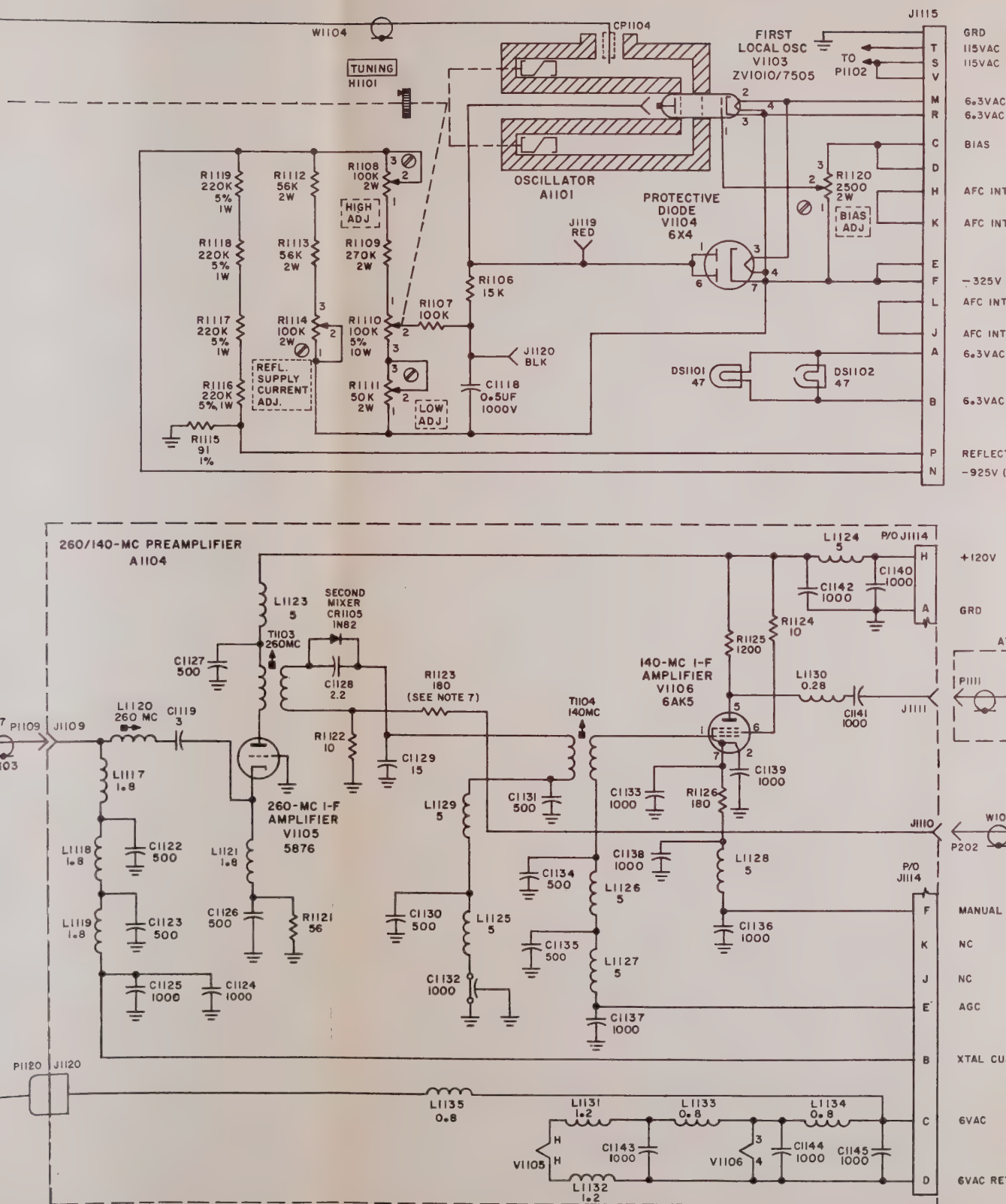
SCHEMATIC DIAGRAMS

5-1. GENERAL.

5-2. This section contains the schematic diagrams and voltage/resistance measurements that are essential aids in the maintenance of the Model R. The schematic diagrams are to be employed in conjunction with Section III to help the technician understand the operation of the Model R. Both the schematic diagrams and the voltage/resistance measurements are to be used in conjunction with Section IV to facilitate troubleshooting and maintenance operations.

POLARAD DRAWING NO. H146729A
SERIAL NOS. 196 THRU 223 AND 7-1 AND UP.


AT1101
CP1101
CP1103
AT1102
P1127
J1126
P1126
J1125
P1125
J1124
P1124
J1122
P1122
3DB
3DB
J1127
J1128
P1128
J1129
CP1102
P1129
XCR1106
FIRST MIXER CR1106 1N21D
L1105
L1107
C1105 500
L1108 1.8
C1107 500
C1106 1000
GRD
C1108 1000
T1105 (SEE NOTE 6)
POWER SUPPLY A1102
R1131 2K 10W
V1108 0B2
V1107 0B2
C1116 0.1UF 400V
J1116 BLK
R1103 100 5%
R1104 100 5%
J1118 BLUE
J1117 RED
260-MC BAND-PASS FILTER FL1101
C1146 1000
L1112 1.8
C1111 1.5
L1115 1.8
C1113 1-8
C1114 1-8
C1112 1000
L1113
L1114
C1115 1000
J1106
J1107
P1105
P1106
W1102
P1107
P1109
W1103
L1109
C1109 1.8
J1105
C1110 1000
MIXER Z1101
P1120


J1115
W1104
CP1104
TUNING
H1101
FIRST
LOCAL OSC
V1103
ZV1010/7505
TO
P1102
OSCILLATOR
A1101
PROTECTIVE
DIODE
V1104
6X4
J1119
RED
R1119 220K 5% 1W
R1112 56K 2W
R1108 100K 2W
HIGH ADJ
R1118 220K 5% 1W
R1113 56K 2W
R1109 270K 2W
R1117 220K 5% 1W
R1114 100K 2W
R1110 100K 5% 10W
R1107 100K
R1106 15K
REFL. SUPPLY CURRENT ADJ.
R1116 220K 5% 1W
R1111 50K 2W
LOW ADJ
R1115 91 1%
J1120 BLK
C1118 0.5UF 1000V
R1120 2500 2W
BIAS ADJ
DS1101 47
DS1102 47
GRD
115VAC
115VAC
6.3VAC
6.3VAC
BIAS
AFC INT
AFC INT
-325V
AFC INT
AFC INT
6.3VAC
6.3VAC
REFLEC
-925V

260/140-MC PREAMPLIFIER
A1104
L1124 5
P/O J1114
C1140 1000
C1142 1000
+120V
GRD
L1123 5
SECOND MIXER CR1105 1N82
T1103 260MC
C1127 500
C1128 2.2
R1123 180 (SEE NOTE 7)
R1124 10
R1125 1200
140-MC I-F AMPLIFIER V1106 6AK5
L1130 0.28
C1141 1000
J1111
P1109
J1109
L1120 260 MC
C1119 3
R1122 10
C1129 15
T1104 140MC
C1131 500
C1133 1000
R1126 180
C1139 1000
L1117 1.8
260-MC I-F AMPLIFIER V1105 5876
L1129 5
J1110
L1118 1.8
C1122 500
L1121 1.8
C1134 500
C1138 1000
L1128 5
L1126 5
P/O J1114
L1119 1.8
C1123 500
C1126 500
R1121 56
C1130 500
L1125 5
C1135 500
C1136 1000
L1127 5
C1125 1000
C1124 1000
C1132 1000
C1137 1000
P1120
J1120
L1135 0.8
L1131 1.2
L1133 0.8
L1134 0.8
C1143 1000
V1105
V1106
C1144 1000
C1145 1000
L1132 1.2
MANUAL
NC
NC
AGC
XTAL CU
6VAC
6VAC RE

TURN

ETURN

RLOCK

RLOCK

EAM SUPPLY)

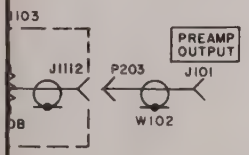
RLOCK

RLOCK

ETURN

R VOLTAGE MONITORING

EFLECTOR SUPPLY)



P302 (MATES WITH J302 ON CRYSTAL-CONTROLLED LOCAL OSCILLATOR)

AIN

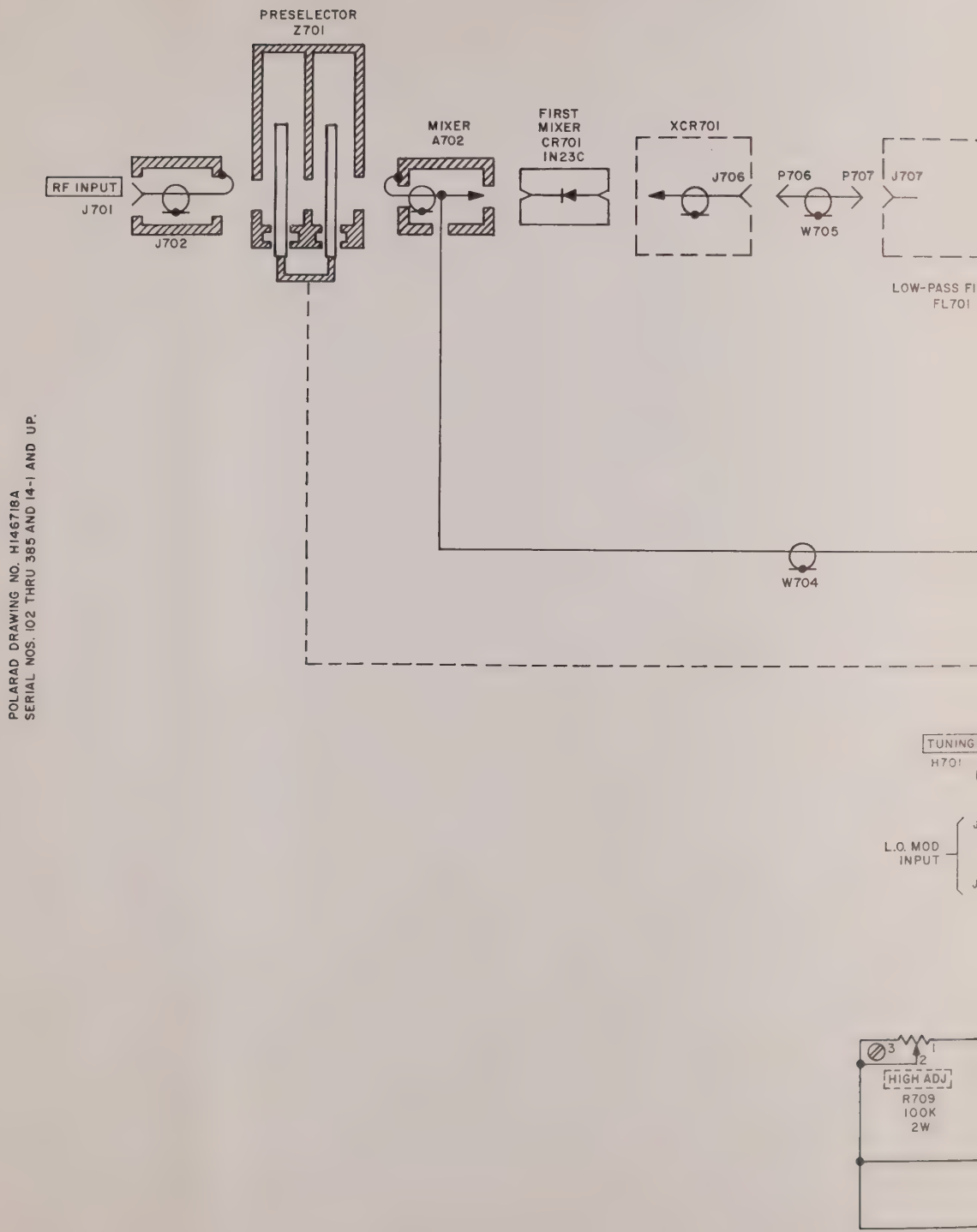
RENT

URN

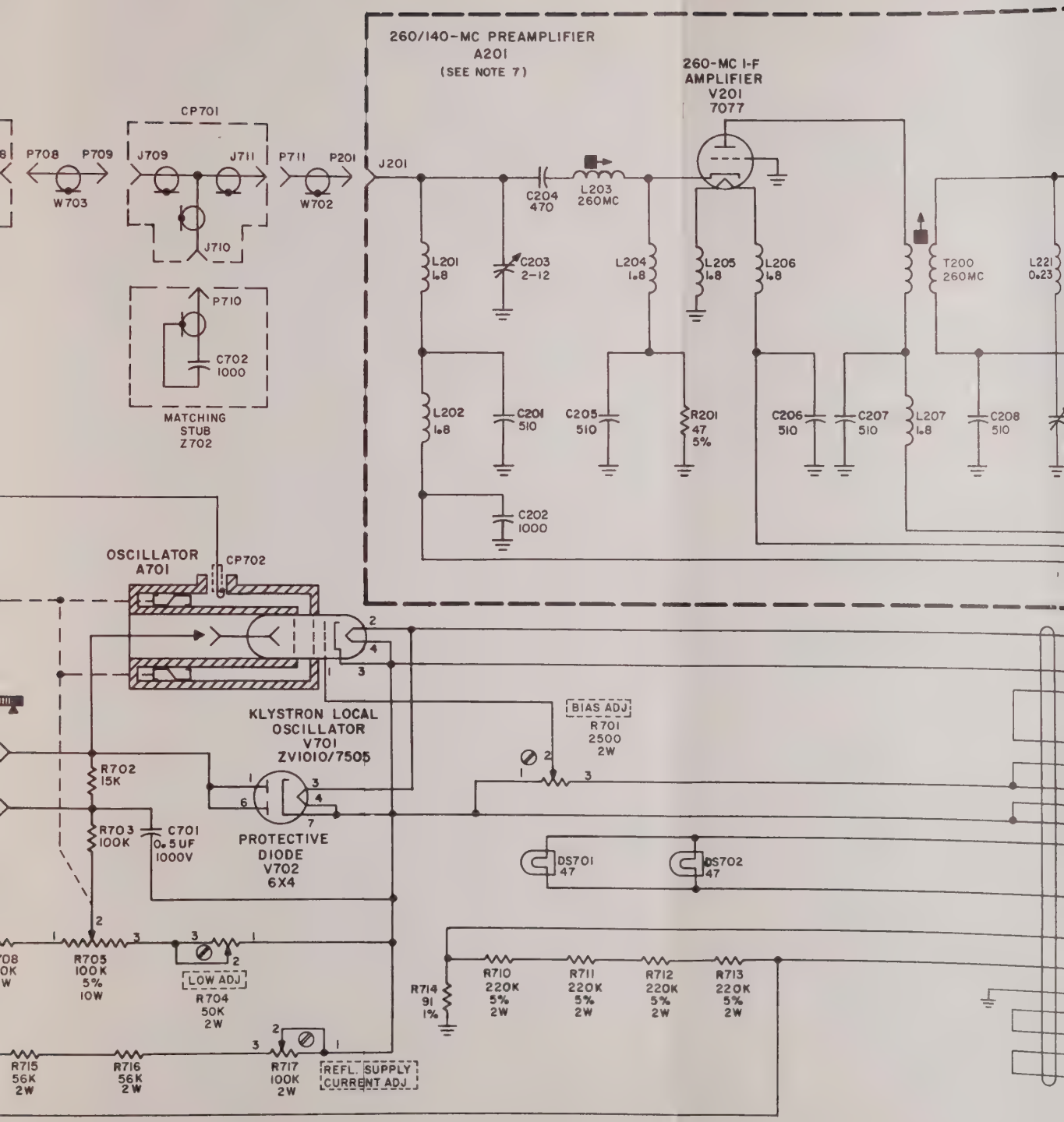
NOTES:

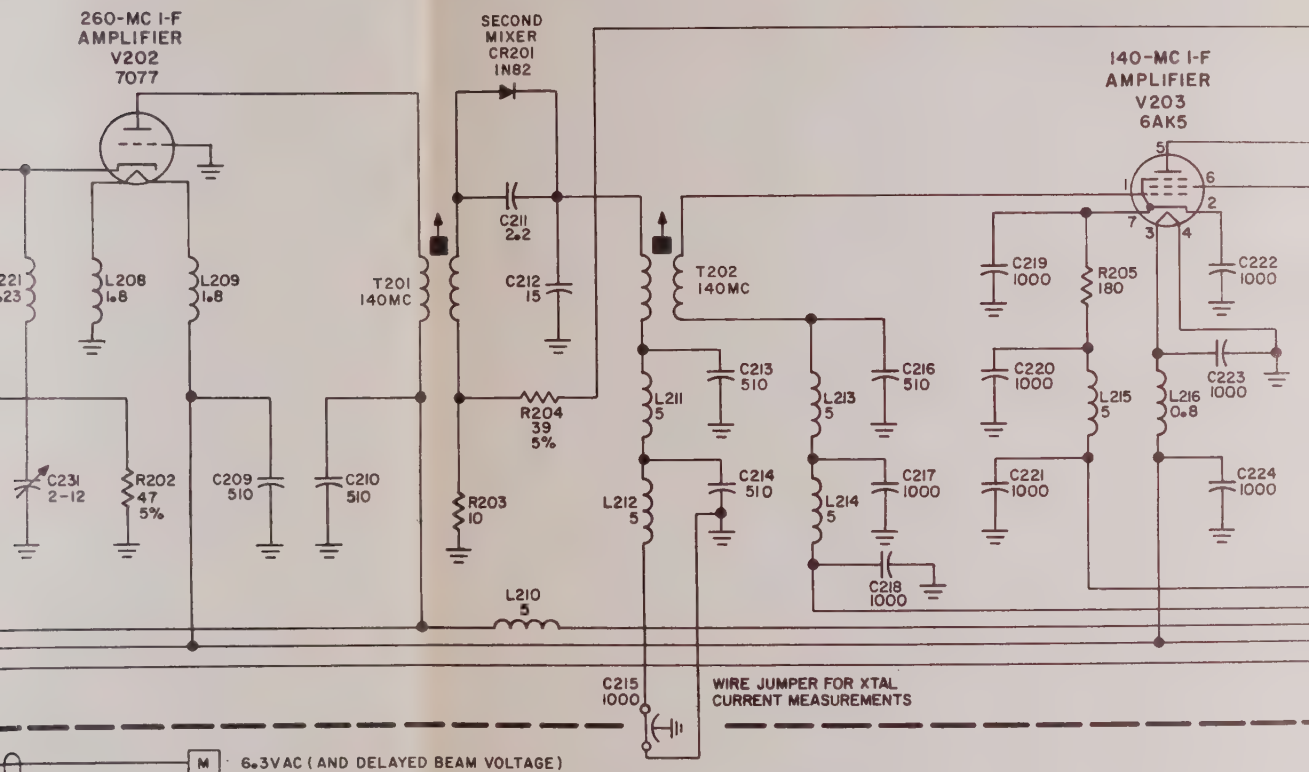
1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING
4. ⬚⬚⬚ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. T1105 USED ONLY IN TUNING UNIT SERIAL NOS. 196 THRU 217. ON ALL OTHER UNITS C1102 AND C1106 ARE CONNECTED DIRECTLY TO P1120.
7. R1123 IS 39 OHMS IN TUNING UNIT SERIAL NOS. 196 THRU 217.
8. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 196 THRU 223 AND 7-1 AND UP.

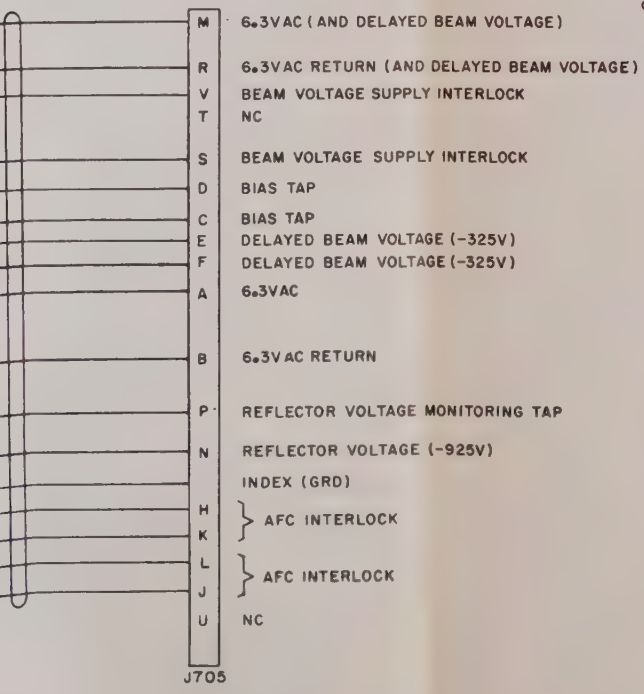
Figure 5-1. Model RR-T Tuning Unit, Schematic Diagram



POLARAD DRAWING NO. H146718A
SERIAL NOS. 102 THRU 385 AND 14-1 AND UP.


260/140-MC PREAMPLIFIER
A201
(SEE NOTE 7)
260-MC I-F
AMPLIFIER
V201
7077
CP701
P708
P709
W703
J709
J711
J710
P711
P201
W702
J201
C204
470
L203
260MC
L201
L8
C203
2-12
L204
L8
L205
L8
L206
L8
T200
260MC
L221
0.23
P710
C702
1000
MATCHING
STUB
Z702
L202
L8
C201
510
C205
510
R201
47
5%
C206
510
C207
510
L207
L8
C208
510
C202
1000
OSCILLATOR
A701
CP702
KLYSTRON LOCAL
OSCILLATOR
V701
ZV1010/7505
BIAS ADJ
R701
2500
2W
R702
15K
R703
100K
C701
0.5UF
1000V
PROTECTIVE
DIODE
V702
6X4
DS701
47
DS702
47
R705
100K
5%
10W
LOW ADJ
R704
50K
2W
R714
91
1%
R710
220K
5%
2W
R711
220K
5%
2W
R712
220K
5%
2W
R713
220K
5%
2W
R715
56K
2W
R716
56K
2W
R717
100K
2W
REFL. SUPPLY
CURRENT ADJ





M — 6.3VAC (AND DELAYED BEAM VOLTAGE)

R — 6.3VAC RETURN (AND DELAYED BEAM VOLTAGE)

V — BEAM VOLTAGE SUPPLY INTERLOCK

T — NC

S — BEAM VOLTAGE SUPPLY INTERLOCK

D — BIAS TAP

C — BIAS TAP

E — DELAYED BEAM VOLTAGE (-325V)

F — DELAYED BEAM VOLTAGE (-325V)

A — 6.3VAC

B — 6.3VAC RETURN

P — REFLECTOR VOLTAGE MONITORING TAP

N — REFLECTOR VOLTAGE (-925V)

INDEX (GRD)

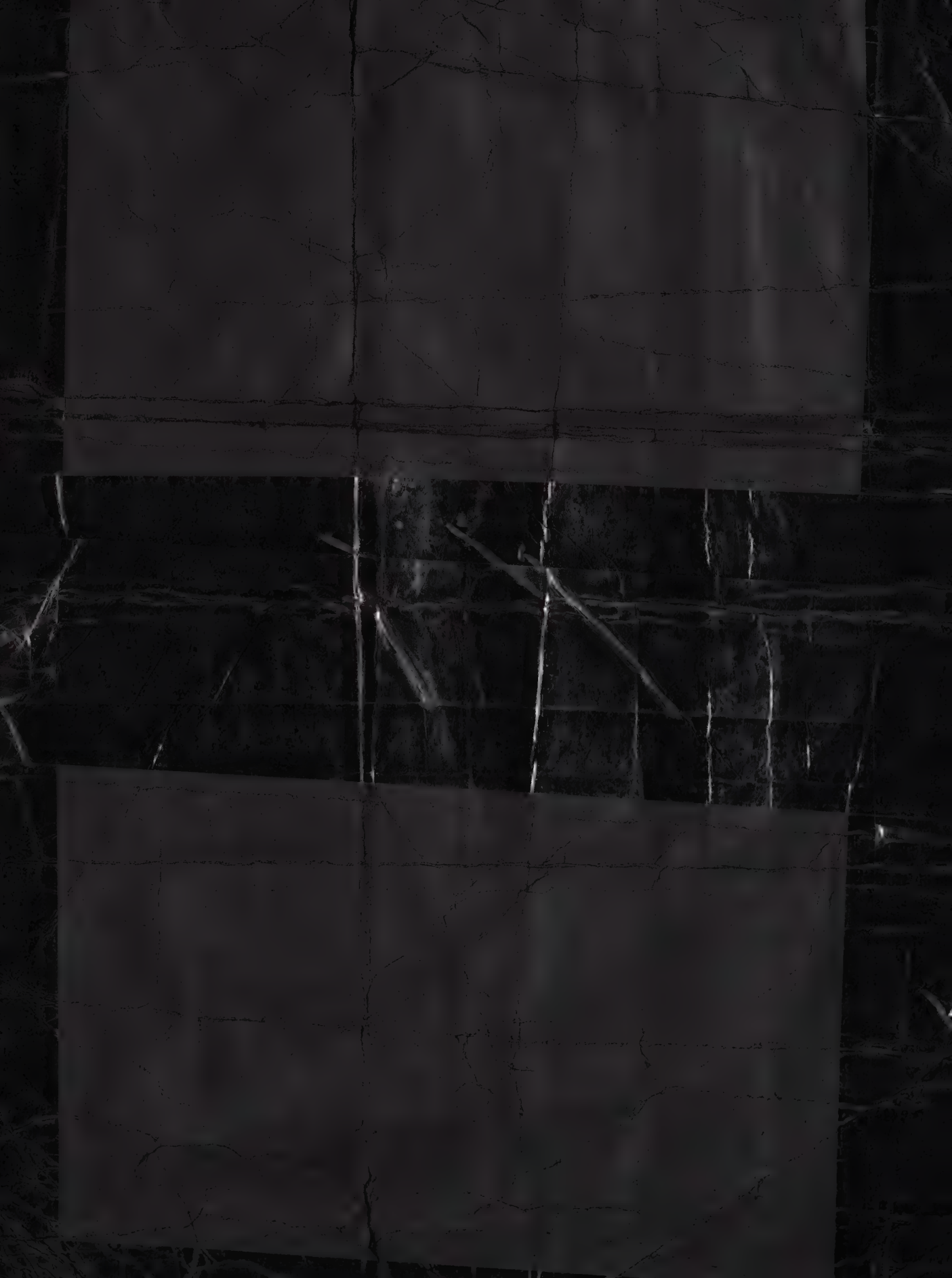
H, K — AFC INTERLOCK

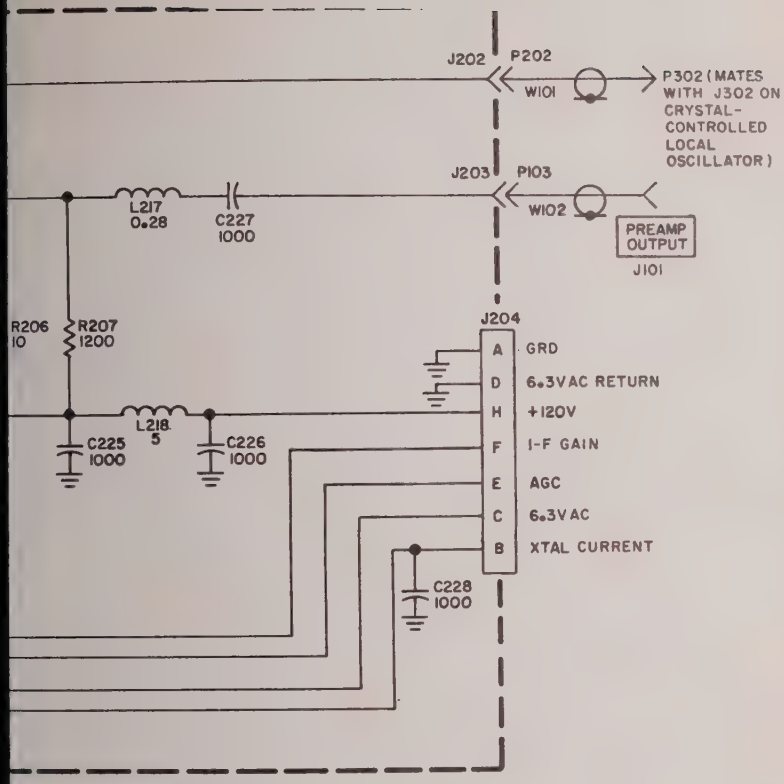
L, J — AFC INTERLOCK

U — NC

NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICR MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ▭▭▭ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. AND 14-1 AND UP.
7. SEE FIGURE 5-9 FOR SCHEMATIC OF 2-STAGE PREA EMPLOYED IN TUNING UNIT SERIAL NOS. 102 THRU SEE FIGURE 5-10 FOR SCHEMATIC OF 2-STAGE PREA EMPLOYED IN TUNING UNIT SERIAL NOS. 357 THRU





FARADS (UUF),
UF FOR
FOR KILOHM,

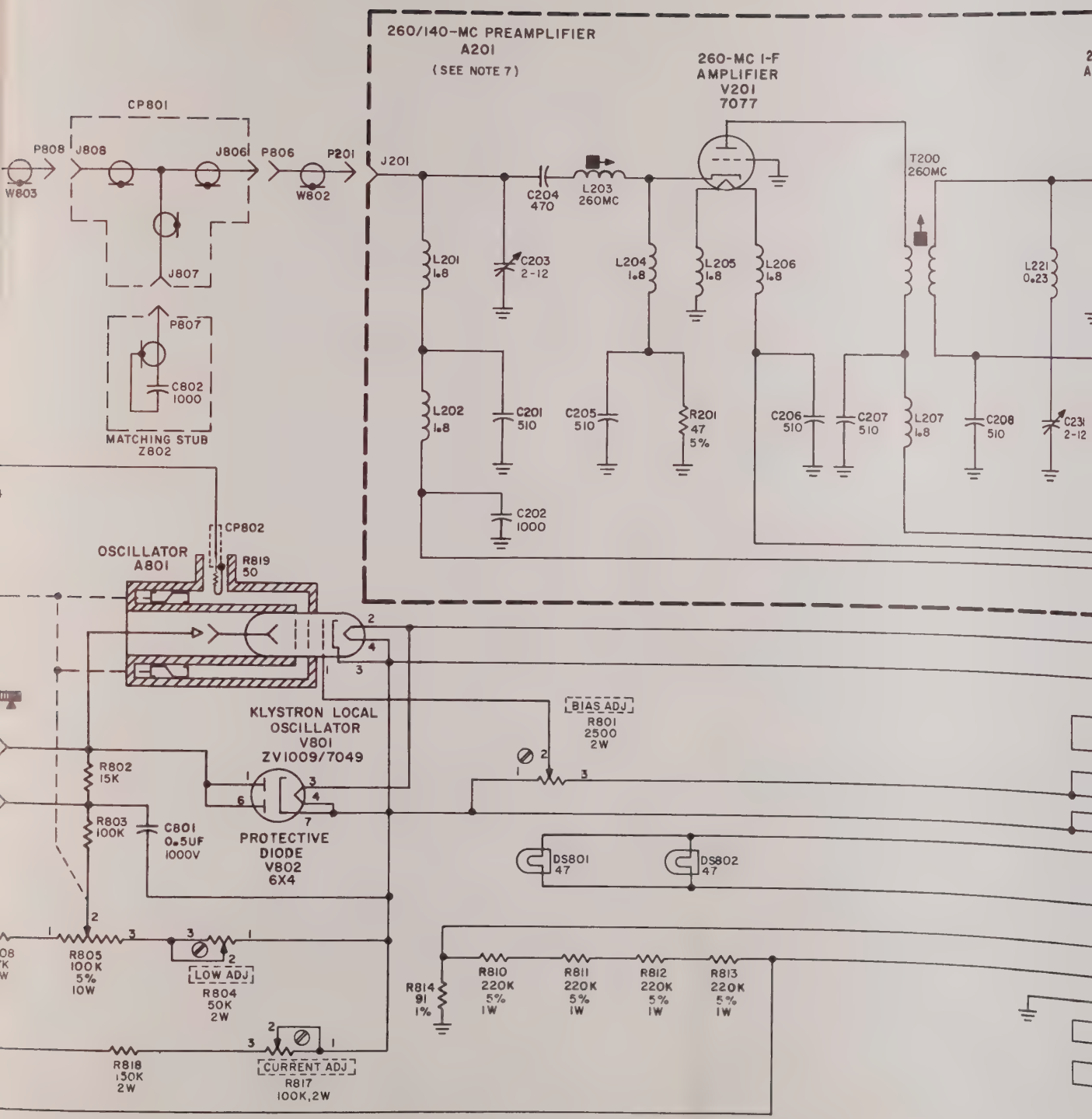
HERWISE

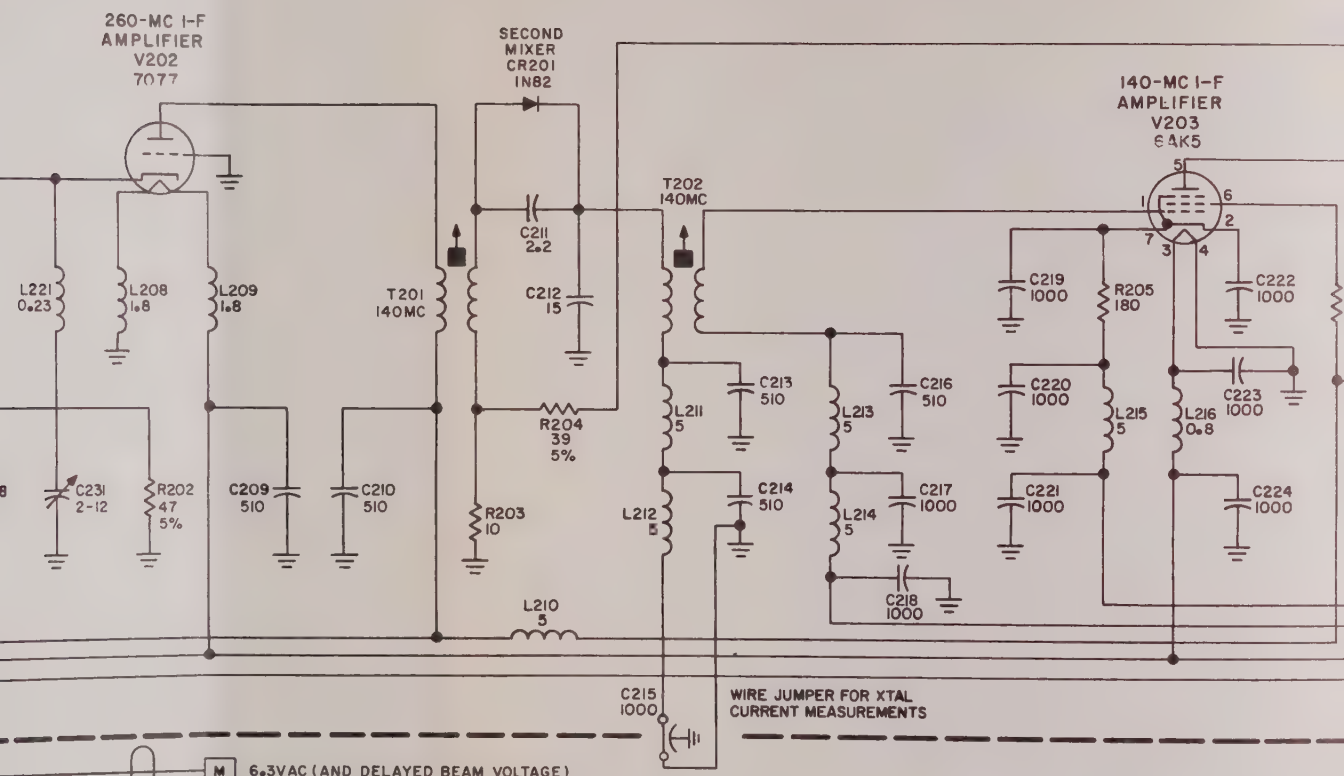
2 THRU 385

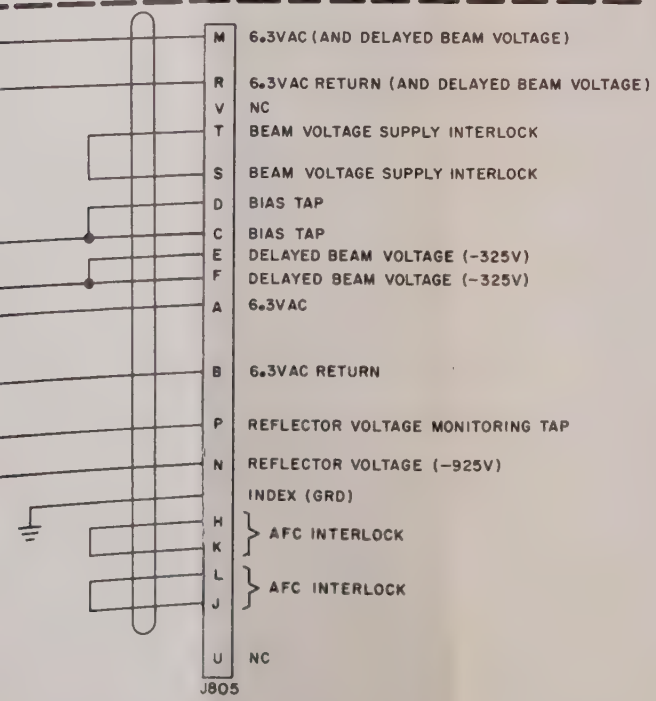
LIFIER
6.
PLIFIER
85.

Figure 5-2. Model RL-T Tuning Unit, Schematic Diagram

POLARAD DRAWING NO. H146717A
SERIAL NOS. 91 THRU 490 AND 15-1 AND UP.

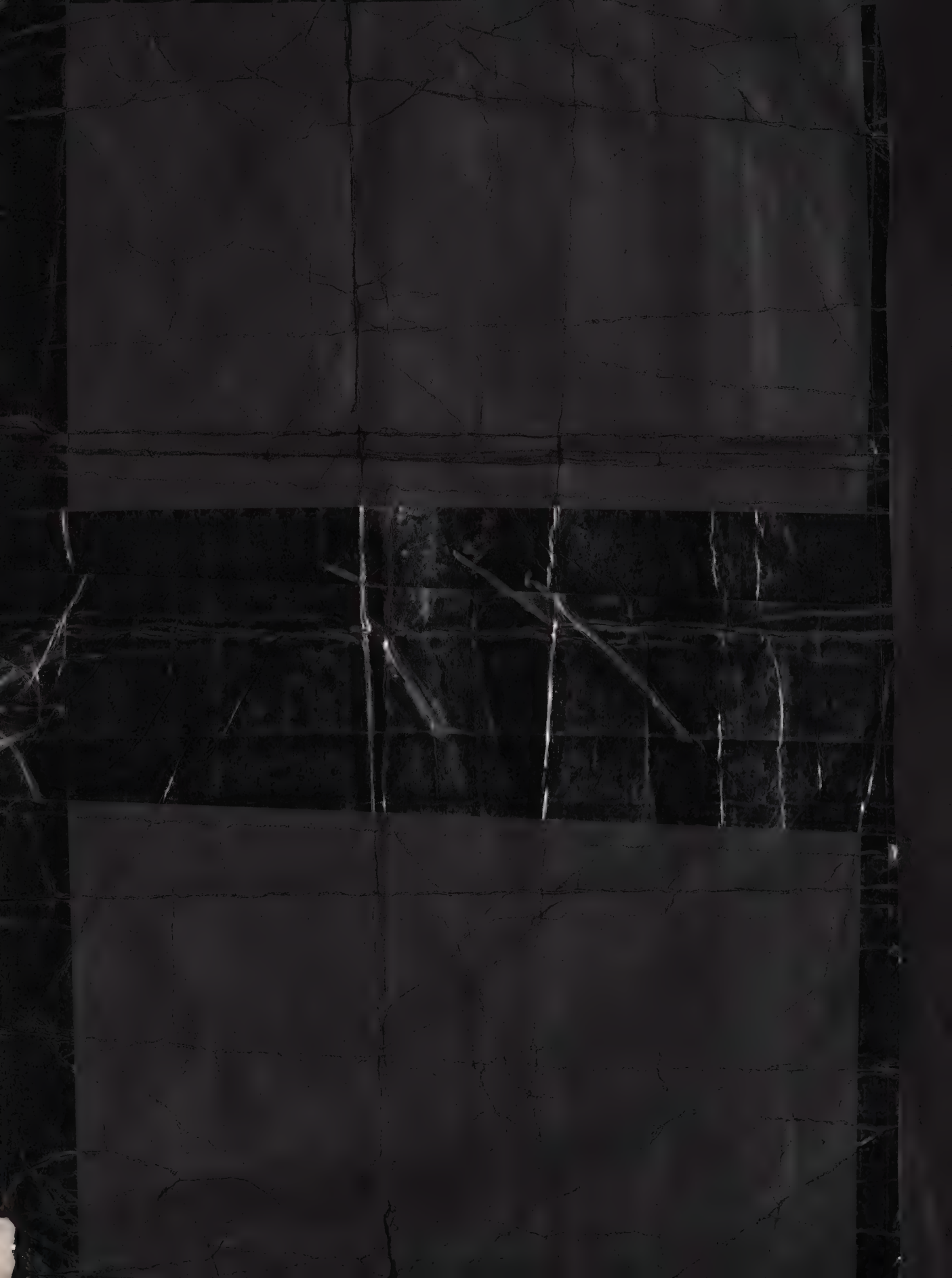

260/140-MC PREAMPLIFIER
A201
(SEE NOTE 7)
260-MC I-F
AMPLIFIER
V201
7077
CP801
P808
J808
J806
P806
P201
W803
W802
J807
P807
C802
1000
MATCHING STUB
Z802
J201
C204
470
L203
260MC
T200
260MC
L201
1.8
C203
2-12
L204
1.8
L205
1.8
L206
1.8
L221
0.23
L202
1.8
C201
510
C205
510
R201
47
5%
C206
510
C207
510
L207
1.8
C208
510
C202
1000
CP802
OSCILLATOR
A801
R819
50
KLYSTRON LOCAL
OSCILLATOR
V801
ZV1009/7049
BIAS ADJ
R801
2500
2W
R802
15K
R803
100K
C801
0.5UF
1000V
PROTECTIVE
DIODE
V802
6X4
DS801
47
DS802
47
R805
100K
5%
10W
LOW ADJ
R804
50K
2W
R814
91
1%
R810
220K
5%
1W
R811
220K
5%
1W
R812
220K
5%
1W
R813
220K
5%
1W
R818
150K
2W
CURRENT ADJ
R817
100K,2W

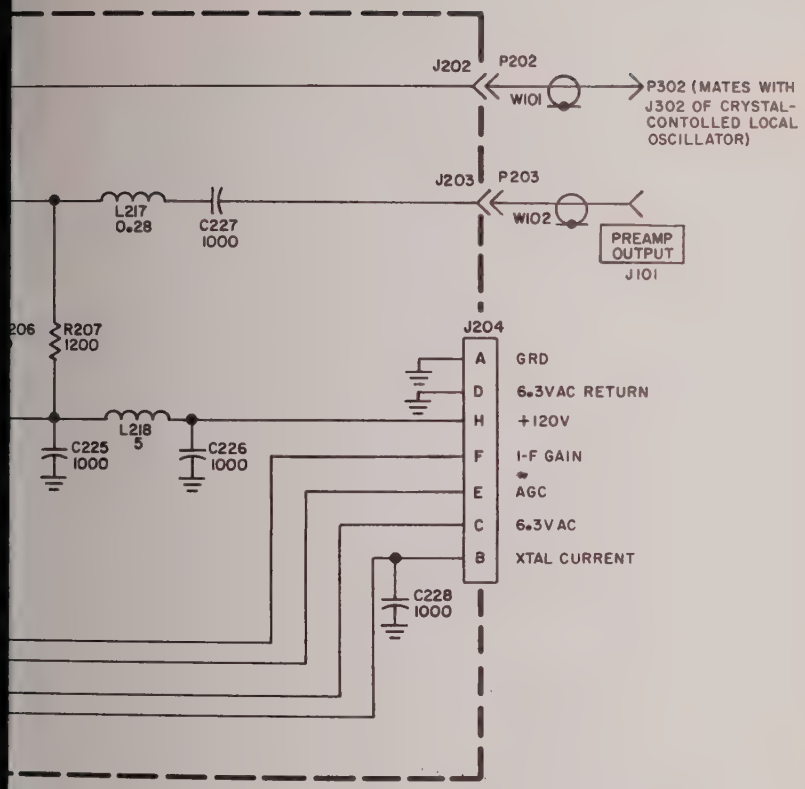




NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS O INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ▭ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 490 AND 15-1 AND UP.
7. SEE FIGURE 5-9 FOR SCHEMATIC OF 2-STAGE PREAMPL EMPLOYED IN TUNING UNIT SERIAL NOS. 91 THRU 415. SEE FIGURE 5-10 FOR SCHEMATIC OF 2-STAGE PREAMPL EMPLOYED IN TUNING UNIT SERIAL NOS. 416 THRU 47 AND 490.





UUF),
UF
K FOR

HERWISE

I THRU

FIER

FIER
, 485,

Figure 5-3. Model RS-T Tuning Unit, Schematic Diagram

POLARAD DRAWING NO. H146718A
SERIAL NOS. 102 THRU 385 AND 14-1 AND UP.

PRESELECTOR
Z701

RF INPUT
J701
J702

MIXER
A702

FIRST MIXER
CR701
IN23C

XCR701
J706

P706 P707
W705

J707 J708
LOW-PASS FILTER
FL701

P708 P709
W703

CP701
J709 J711
J710

P711 P201
W702

P710
C702
1000
MATCHING STUB
Z702

W704

OSCILLATOR
A701

CP702

TUNING
H701

J703
RED
J704
BLK
L.O. MOD INPUT

R702
15K

R703
100K

C701
0.5UF
1000V

KLYSTRON LOCAL OSCILLATOR
V701
ZV1010/7505

PROTECTIVE DIODE
V702
6X4

BIAS ADJ
R701
2500
2W

DS701
47

DS702
47

HIGH ADJ
R709
100K
2W

R708
150K
2W

R705
100K
5%
10W

LOW ADJ
R704
50K
2W

R715
56K
2W

R716
56K
2W

R717
100K
2W

REFL. SUPPLY CURRENT ADJ

R714
91
1%

R710
220K
5%
2W

R711
220K
5%
2W

R712
220K
5%
2W

R713
220K
5%
2W

260/140-MC PREAMPLIFIER
A201
(SEE NOTE 7)

J201

C204
470

L203
260MC

L201
1.8

C203
2-12

L202
1.8

C201
510

C202
1000

L204
1.8

C205
510

R201
47
5%

260-MC I-F AMPLIFIER
V201
7077

L205
1.8

L206
1.8

C206
510

C207
510

L207
1.8

T200
260MC

C208
510

260-MC I-F AMPLIFIER
V202
7077

L221
0.23

C231
2-12

R202
47
5%

L208
1.8

L209
1.8

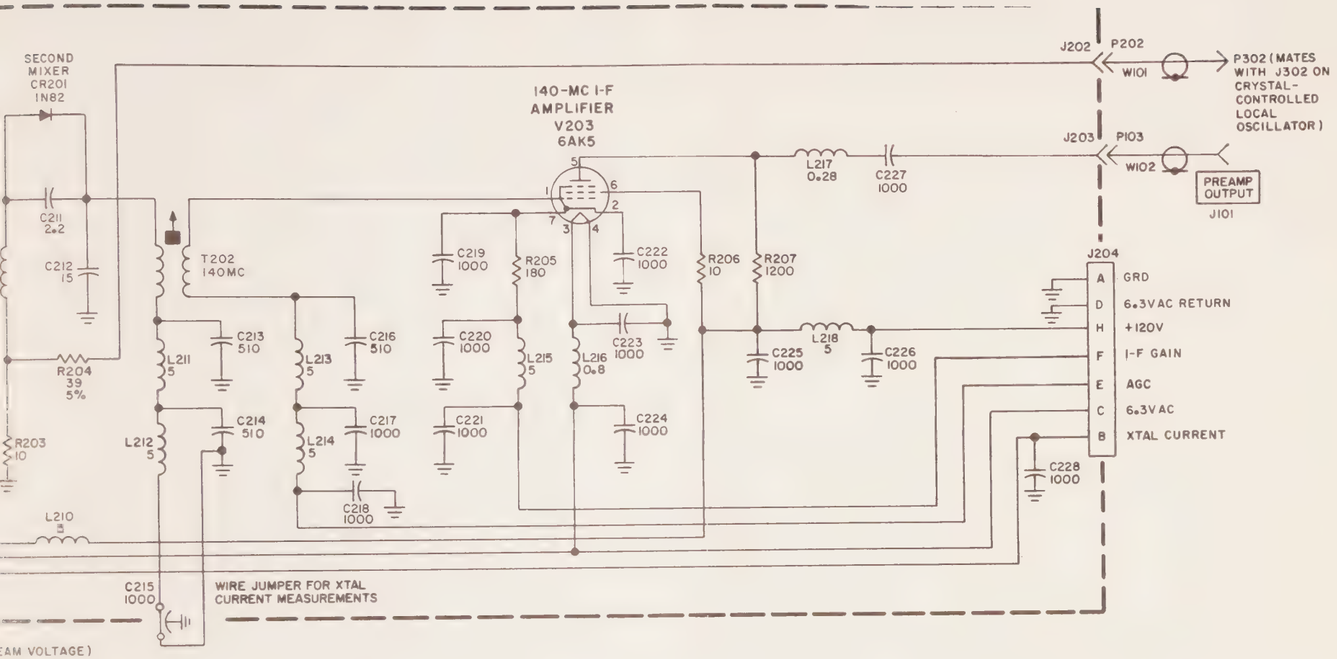
C209
510

C210
510

T20
140M

J705

M	6.3VAC (AND DELA
R	6.3VAC RETURN (
V	BEAM VOLTAGE SU
T	NC
S	BEAM VOLTAGE SU
D	BIAS TAP
C	BIAS TAP
E	DELAYED BEAM VO
F	DELAYED BEAM VO
A	6.3VAC
B	6.3VAC RETURN
P	REFLECTOR VOLT
N	REFLECTOR VOLT
	INDEX (GRD)
H, K	AFC INTERLOC
L, J	AFC INTERLOC
U	NC



NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ⊏⊐⊏⊐⊏⊐ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 102 THRU 385 AND 14-1 AND UP.
7. SEE FIGURE 5-9 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 102 THRU 356. SEE FIGURE 5-10 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 357 THRU 385.

Figure 5-2. Model RL-T Tuning Unit, Schematic Diagram

POLARAD DRAWING NO. H146717A
SERIAL NOS. 91 THRU 490 AND 15-1 AND UP.

PRESELECTOR
Z801

RF INPUT
J801
P802
W801
J802
MIXER
A802
CP803
FIRST
MIXER
CR801
IN23C
XCR801
W803
P808
J808
CP801
J806
P806
P201
W802
J807
P807
C802
1000
MATCHING STUB
Z802
W804
CP802
OSCILLATOR
A801
R819
50
TUNING
H801
J803
RED
J804
BLK
L.O. MOD
INPUT
R802
15K
R803
100K
C801
0.5UF
1000V
KLYSTRON LOCAL
OSCILLATOR
V801
ZV1009/7049
PROTECTIVE
DIODE
V802
6X4
HIGH ADJ
R809
100K
2W
R808
47K
2W
R805
100K
5%
10W
LOW ADJ
R804
50K
2W
R818
130K
2W
CURRENT ADJ
R817
100K,2W
BIAS ADJ
R801
2500
2W
DS801
47
DS802
47
R814
91
1%
R810
220K
5%
1W
R811
220K
5%
1W
R812
220K
5%
1W
R813
220K
5%
1W

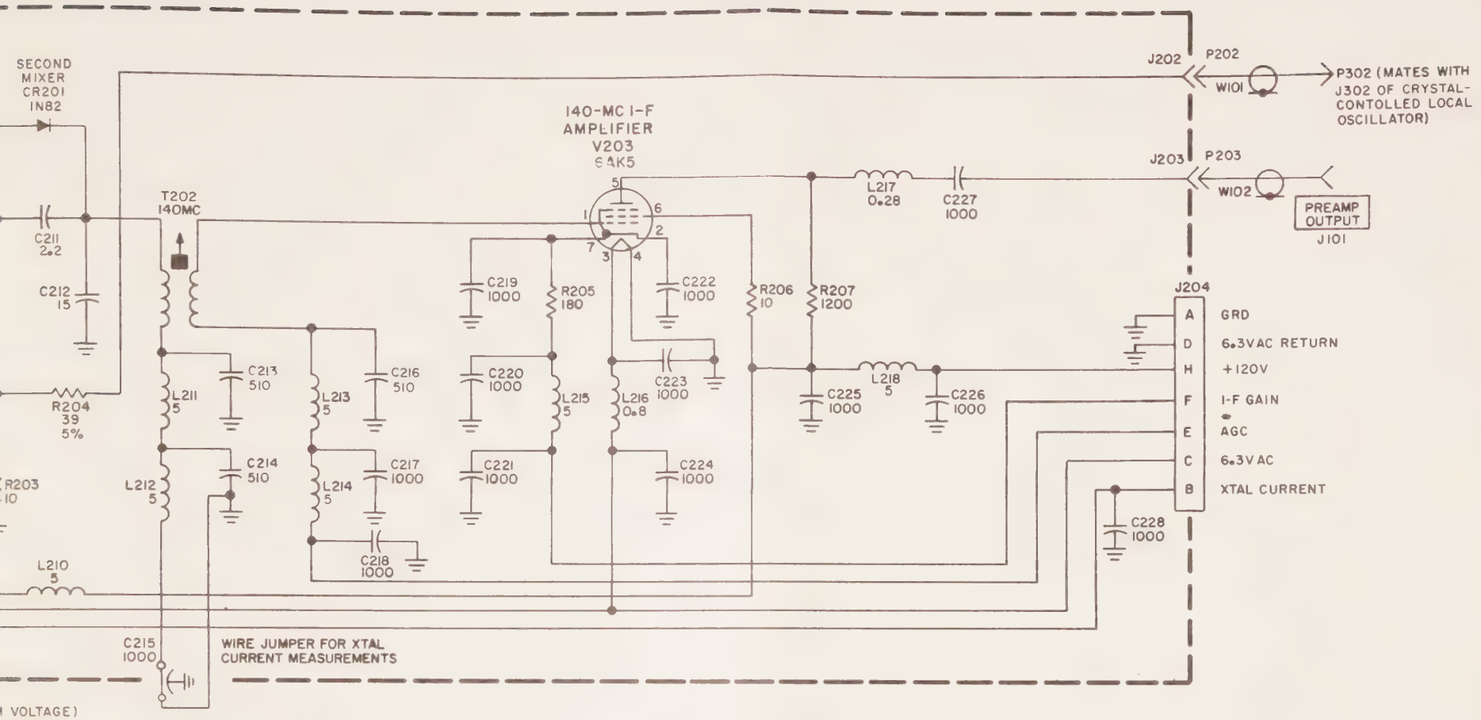
260/140-MC PREAMPLIFIER
A201
(SEE NOTE 7)

260-MC I-F
AMPLIFIER
V201
7077

260-MC I-F
AMPLIFIER
V202
7077

J201
C204
470
L203
260MC
T200
260MC
L201
1.8
C203
2-12
L202
1.8
C201
510
C202
1000
L204
1.8
L205
1.8
L206
1.8
C205
510
R201
47
5%
C206
510
C207
510
L207
1.8
C208
510
L221
0.23
C231
2-12
R202
47
5%
L208
1.8
L209
1.8
C209
510
C210
510
T20
140MC

J805
M 6.3VAC (AND DELAY
R 6.3VAC RETURN (A
V NC
T BEAM VOLTAGE SU
S BEAM VOLTAGE SU
D BIAS TAP
C BIAS TAP
E DELAYED BEAM VO
F DELAYED BEAM VO
A 6.3VAC
B 6.3VAC RETURN
P REFLECTOR VOLT
N REFLECTOR VOLT
INDEX (GRD)
H AFC INTERLOC
K
L AFC INTERLOC
J
U NC



VOLTAGE)

YED BEAM VOLTAGE)

ERLOCK

ERLOCK

325V)
325V)

ORING TAP

V)

NOTES:

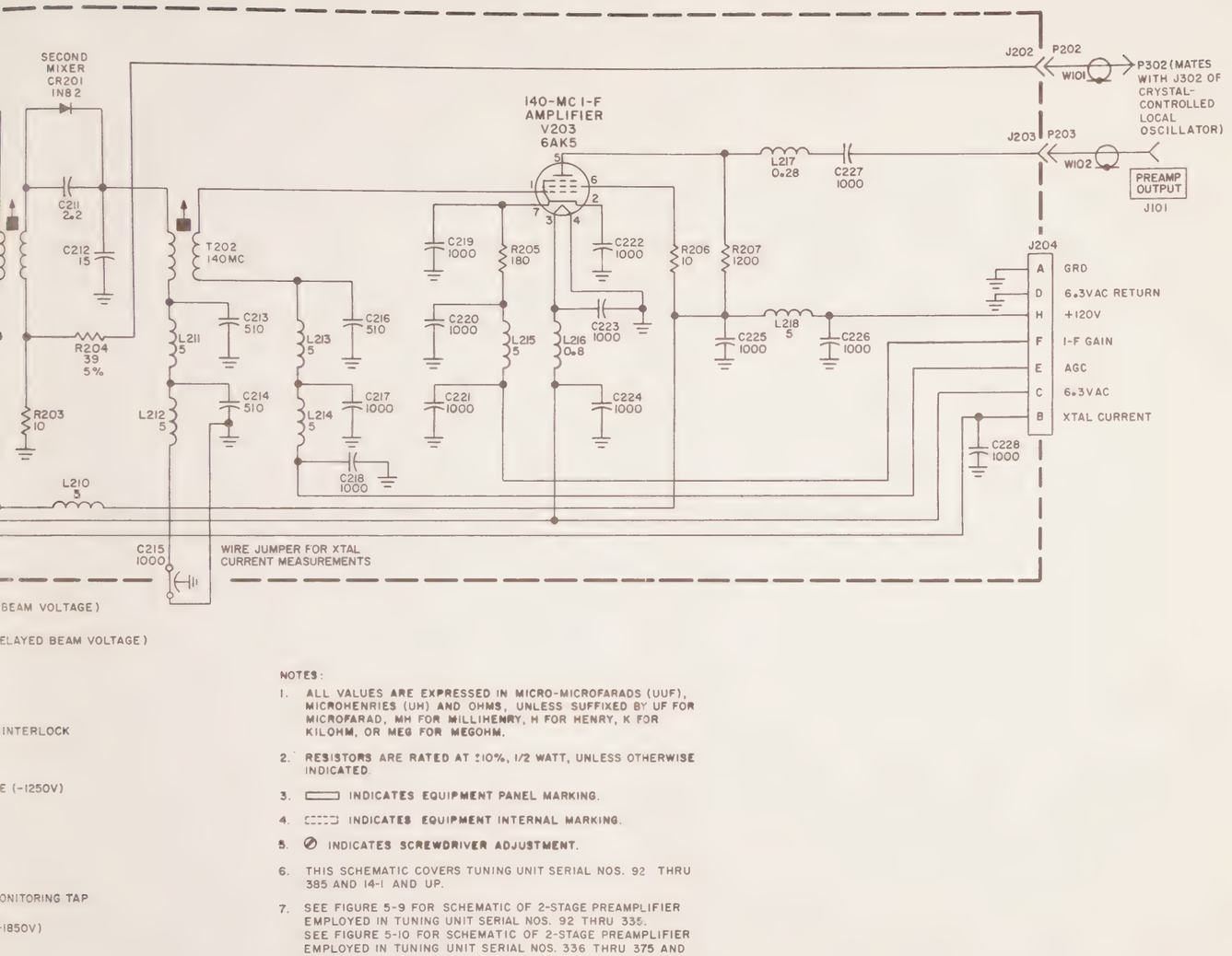
1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ▭ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 91 THRU 490 AND 15-1 AND UP.
7. SEE FIGURE 5-9 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 91 THRU 415. SEE FIGURE 5-10 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 416 THRU 475, 485, AND 490.

Figure 5-3. Model RS-T Tuning Unit, Schematic Diagram

POLARAD DRAWING NO. H146720A
SERIAL NOS. 92 THRU 385 AND 14-1 AND UP.

PRESELECTOR
Z901

RF INPUT
J901
W901
CP904
MIXER
A902
CP902
FIRST
MIXER
IN23D
XCR901
J902
CP901
P902
J907
P907
P201
W902
J906
P906
C902
1000
MATCHING STUB
Z902
W904
CP903
OSCILLATOR
A901
R917
50
TUNING
H901
J903
RED
J904
BLK
R902
100K
R903
560K
C901
0.5UF
1000V
KLYSTRON LOCAL
OSCILLATOR
V901
5721
PROTECTIVE
DIODE
V902
6X4
HIGH
ADJ
R908
50K
2W
R905
100K
5%
10W
LOW
ADJ
R904
50K
2W
REFL SUPPLY
CURRENT ADJ
R916
1MEG
20%
2W
R914
100K
5%
2W
R915
100K
5%
2W
260/140-MC PREAMPLIFIER
A201
(SEE NOTE 7)
J201
C204
470
L203
260MC
260-MC I-F
AMPLIFIER
V201
7077
L201
1.8
C203
2-12
L204
1.8
L205
1.8
L206
1.8
L202
1.8
C201
510
C205
510
R201
47
5%
C202
1000
C206
510
C207
510
L207
1.8
T200
260MC
L221
0.23
C208
510
260-MC I-F
AMPLIFIER
V202
7077
L208
1.8
L209
1.8
C231
2-12
R202
47
5%
C209
510
BLOWER
B901
BIAS
ADJ
R901
2500,2W
DS901
47
DS902
47
R913
72.5
1%
R909
390K
5%
2W
R910
390K
5%
2W
R911
390K
5%
2W
R912
390K
5%
2W
M 6.3VAC (AND
R 6.3VAC RETUR
V NC
T
S 115VAC
U BEAM VOLTAG
C BIAS TAP
F DELAYED BEA
A 6.3VAC
B 6.3VAC RETU
P REFLECTOR V
N REFLECTOR
INDEX (GRD)
H AFC INTER
K
L AFC INTE
J
E NC
D NC
J905



NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ⬚ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 92 THRU 385 AND 14-1 AND UP.
7. SEE FIGURE 5-9 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 92 THRU 335. SEE FIGURE 5-10 FOR SCHEMATIC OF 2-STAGE PREAMPLIFIER EMPLOYED IN TUNING UNIT SERIAL NOS. 336 THRU 375 AND 14-1 THRU 14-15.

Figure 5-4. Model RM-T Tuning Unit, Schematic Diagram

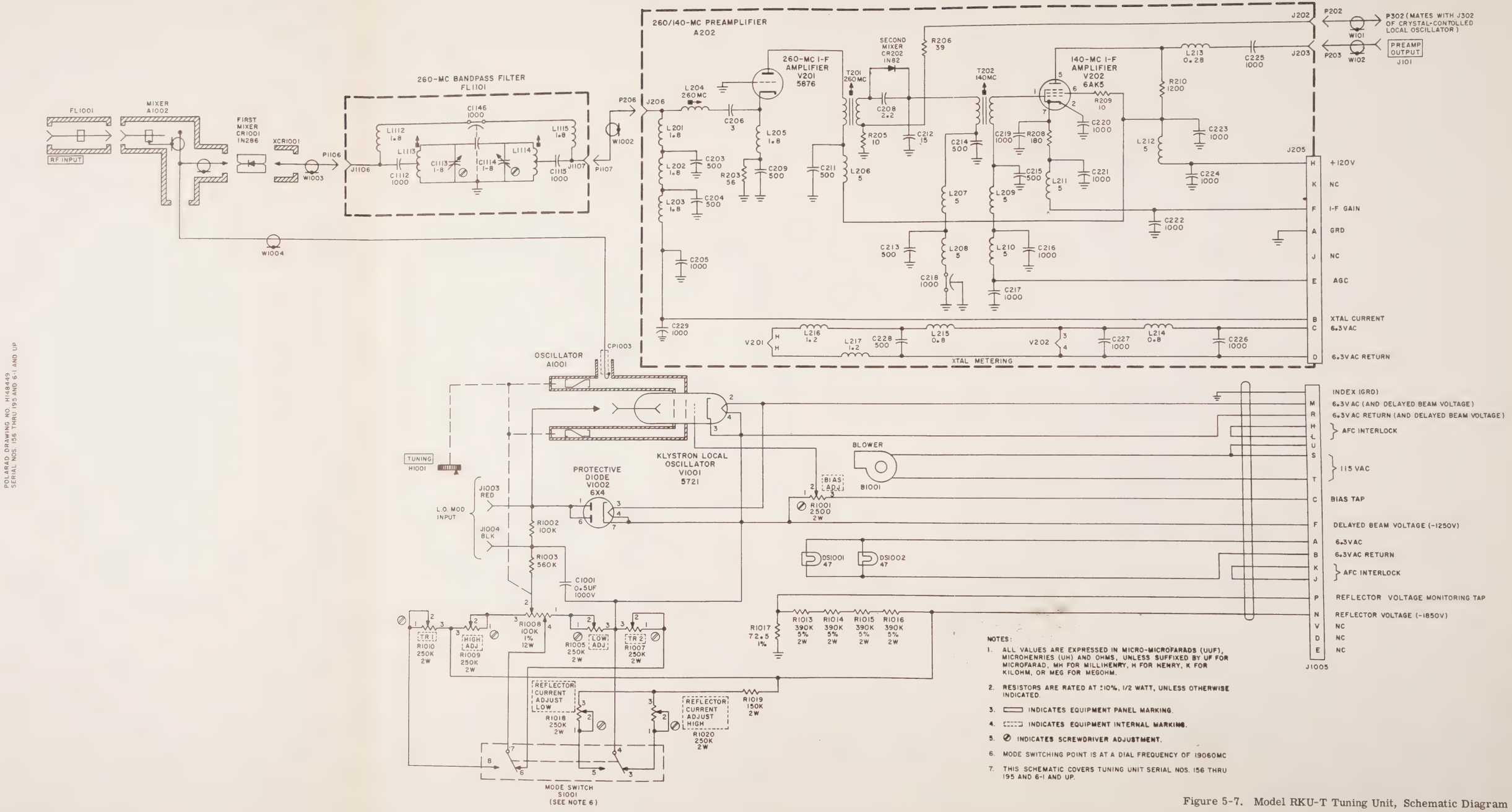


Figure 5-7. Model RKU-T Tuning Unit, Schematic Diagram

POLARAD DRAWING NO. H148450A
SERIAL NOS. 101 THRU 145 AND 4-1 AND UP

INDEX (GRD) · REFLECTOR SUPPLY (-1300V) · AFC INTERLOCK · AFC INTERLOCK · REFLECTOR VOLTAGE MONITORING TAP · 6.3VAC RETURN (AND DELAYED BEAM VOLTAGE) · 6.3VAC (AND DELAYED BEAM VOLTAGE) · DELAYED BEAM VOLTAGE (-700V) · DELAYED BEAM VOLTAGE (-700V) · BIAS TAP · BIAS TAP · BEAM VOLTAGE SUPPLY INTERLOCK · 115 VAC · 6.3VAC · 6.3VAC RETURN · AFC INTERLOCK · AFC INTERLOCK

N H L P R M F C D E U V S T A B J K

J1208

R1216 430K 1% 2W · R1215 430K 1% 2W · R1214 430K 1% 2W · R1213 20K 1% · R1212 20K 1% · R1210 100K 2W

TR 1 · TR 2

R1205 47K,2W · R1206 100K 2W · S1202A (SEE NOTE 6) · R1211 22K,1W

HIGH ADJUST · LOW ADJUST

R1203 47K,2W · R1204 50K,2W · R1208 25K,2W · R1209 10K,1W · R1207 100K 5%,9W · R1219 100K,2W

R1217 50K 5%,10W · R1218 90K 1%,7W · R1220 250K,2W · S1202B · R1221 500K,2W

LOW ADJUST · HIGH ADJUST

T1201 · 34V AC · 68V AC

DS1201 47 · DS1202 47

R1202 470K · C1201 0.5UF 1000V

J1204 BLK · J1203 RED · L.O. MOD INPUT

PROTECTIVE DIODE V1202 6X4

R1201 100K

TUNING H1201

OSCILLATOR A1201

KLYSTRON LOCAL OSCILLATOR V1201 V-39C

XCR1201 · FIRST MIXER CR1201 IN53 · 26.5-46.7GC MIXER A1202

XCR1202 · FIRST MIXER CR1202 IN26 · 20.3-26.5GC MIXER A1203

WAVEGUIDE TEE A1204

ATTENUATOR AT1201

W1204 · W1205 · W1203

BLOWER B1201

S1201 · 20.3-26.5KMC · 26.5-46.7KMC

P1201 J1201 · P1202 J1202 · J1205 P1205 · W1201 · K1201

RF INPUT SELECTOR H1202

260-MC BANDPASS FILTER FL1101

L1115 1.8 · C1115 1000 · L1114 · C1114 1-8 · C1146 1000 · C1111 1.5 · C1113 1-8 · L1113 · L1112 1.8 · C1112 1000

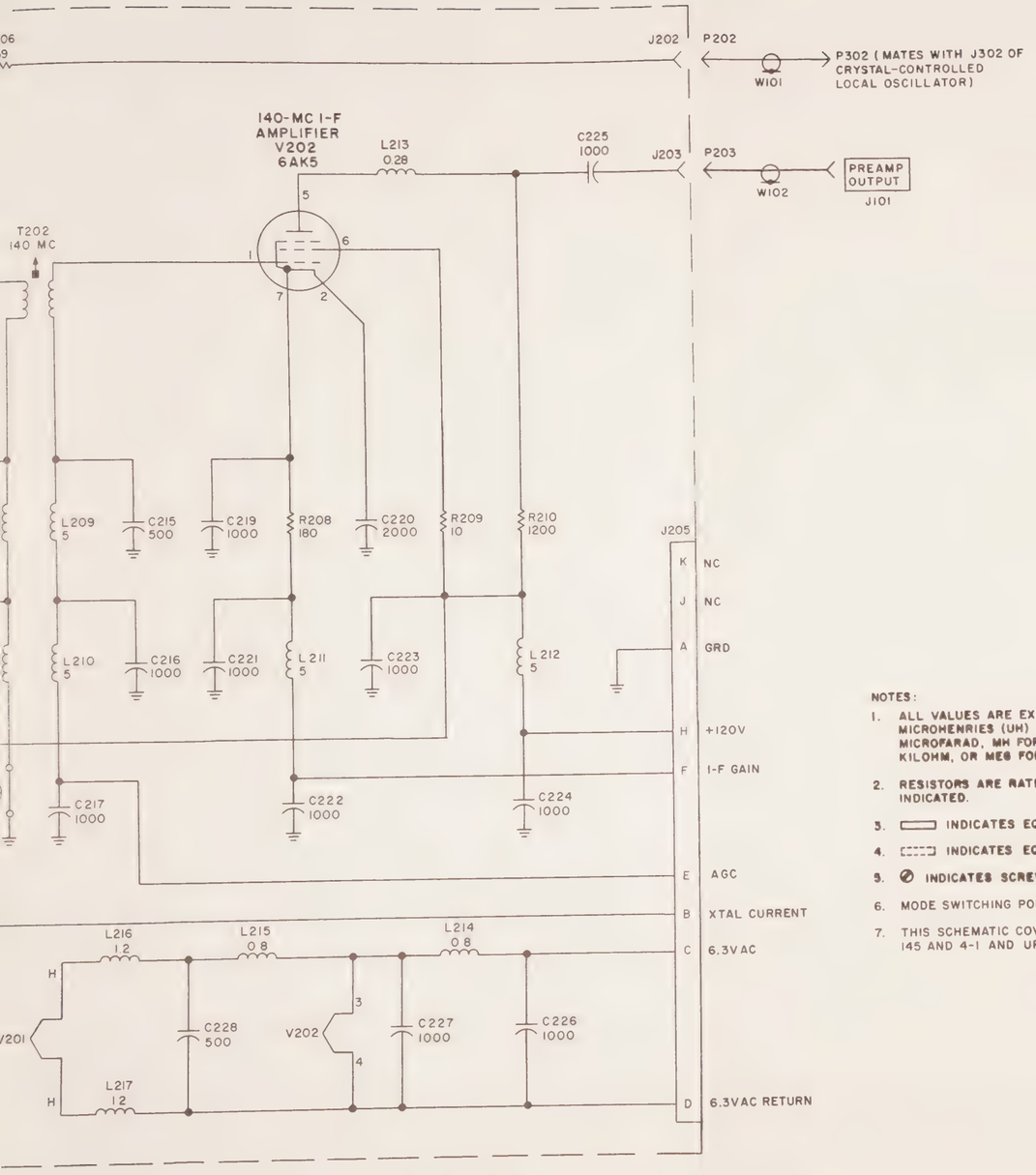
J1107 · P1107 · W1202 · P206 · J206 · P1106 · J1106

260/140-MC PREAMPLIFIER A202

260-MC I-F AMPLIFIER V201 5876

L204 260MC · C206 3 · L201 1.8 · L205 1.8 · L202 1.8 · C203 500 · C209 500 · R203 56 · L203 1.8 · C204 500 · C211 500 · L206 5 · C205 1000 · C219 1000

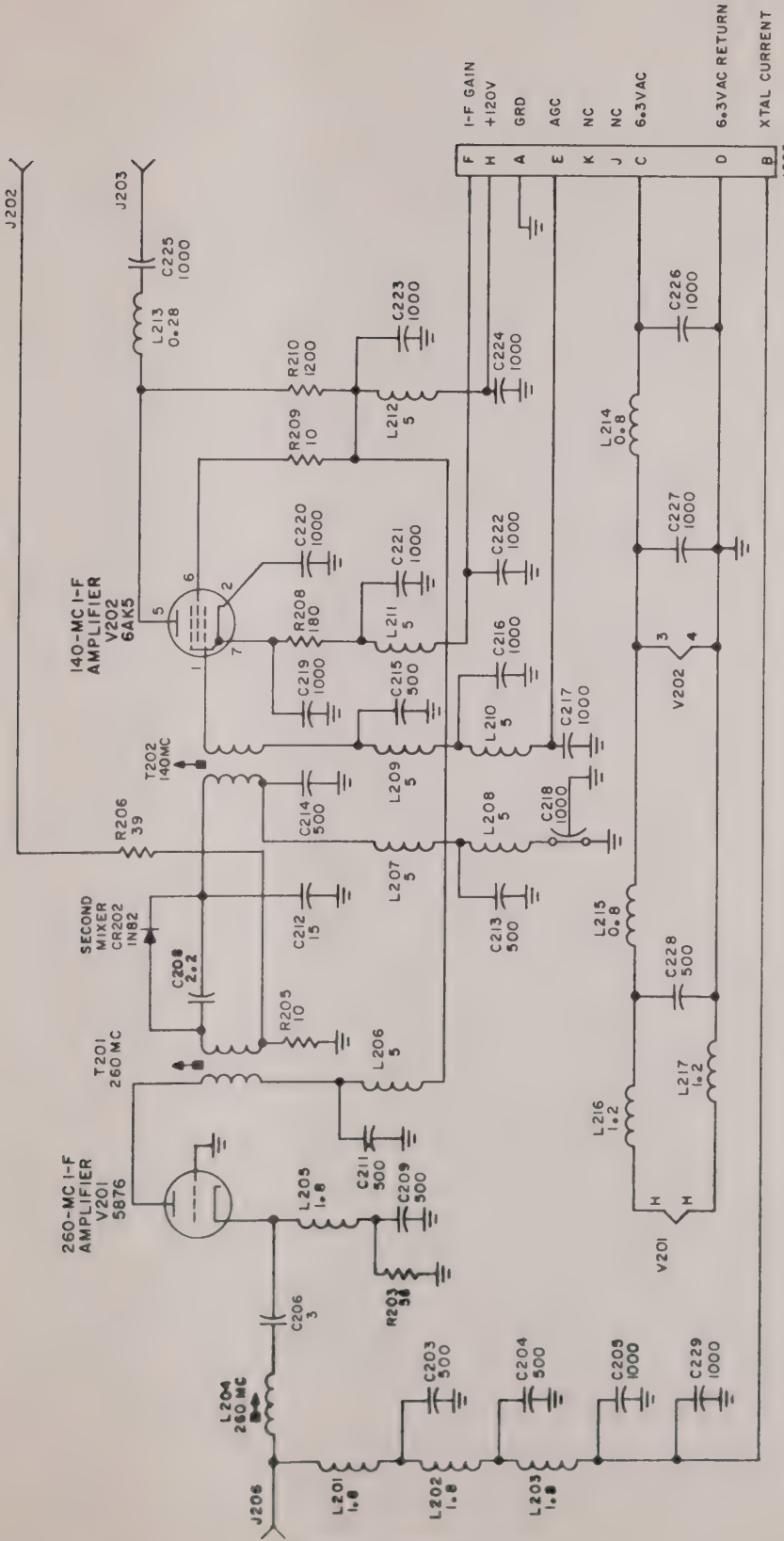
T201 260 MC · SECOND MIXER CR202 IN82 · C208 2.2 · R205 10 · C212 15 · C214 500 · C213 500



NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. ▭ INDICATES EQUIPMENT PANEL MARKING.
4. ⬚ INDICATES EQUIPMENT INTERNAL MARKING.
5. ⊘ INDICATES SCREWDRIVER ADJUSTMENT.
6. MODE SWITCHING POINT IS AT LOW DIAL FREQUENCY OF
7. THIS SCHEMATIC COVERS TUNING UNIT SERIAL NOS. 101 THRU 145 AND 4-1 AND UP.

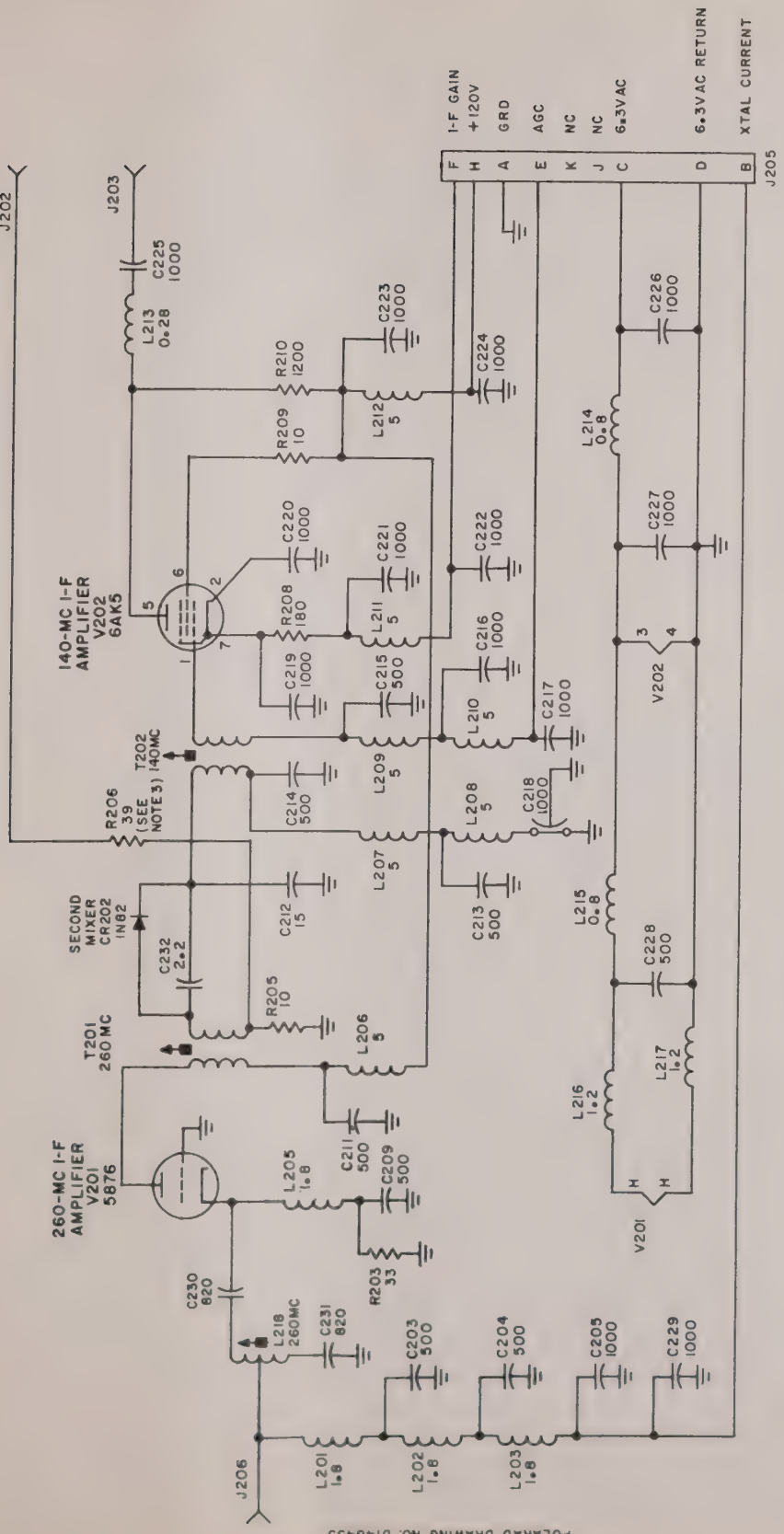
Figure 5-8. Model RQ-T Tuning Unit, Schematic Diagram



NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.

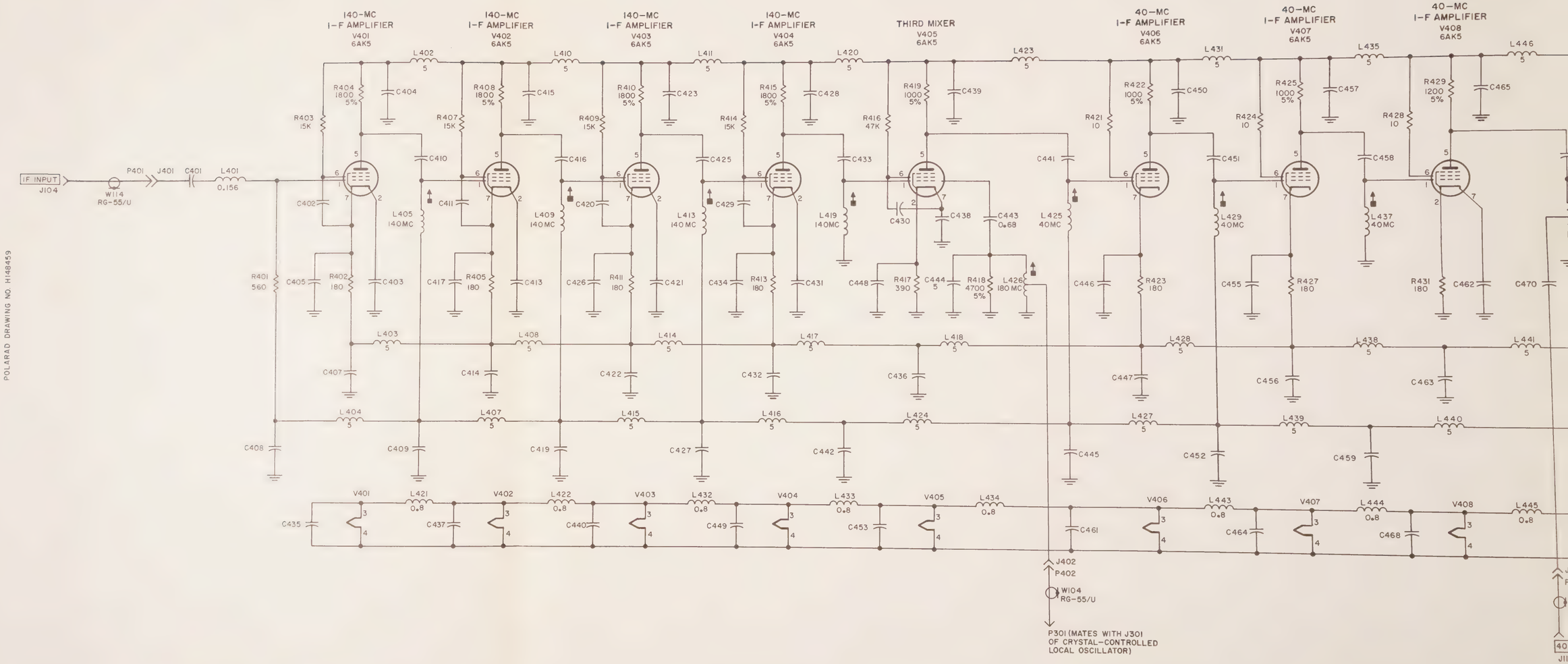
Figure 5-9. 260/140-Mc Preamplifier Assembly A202, Schematic Diagram

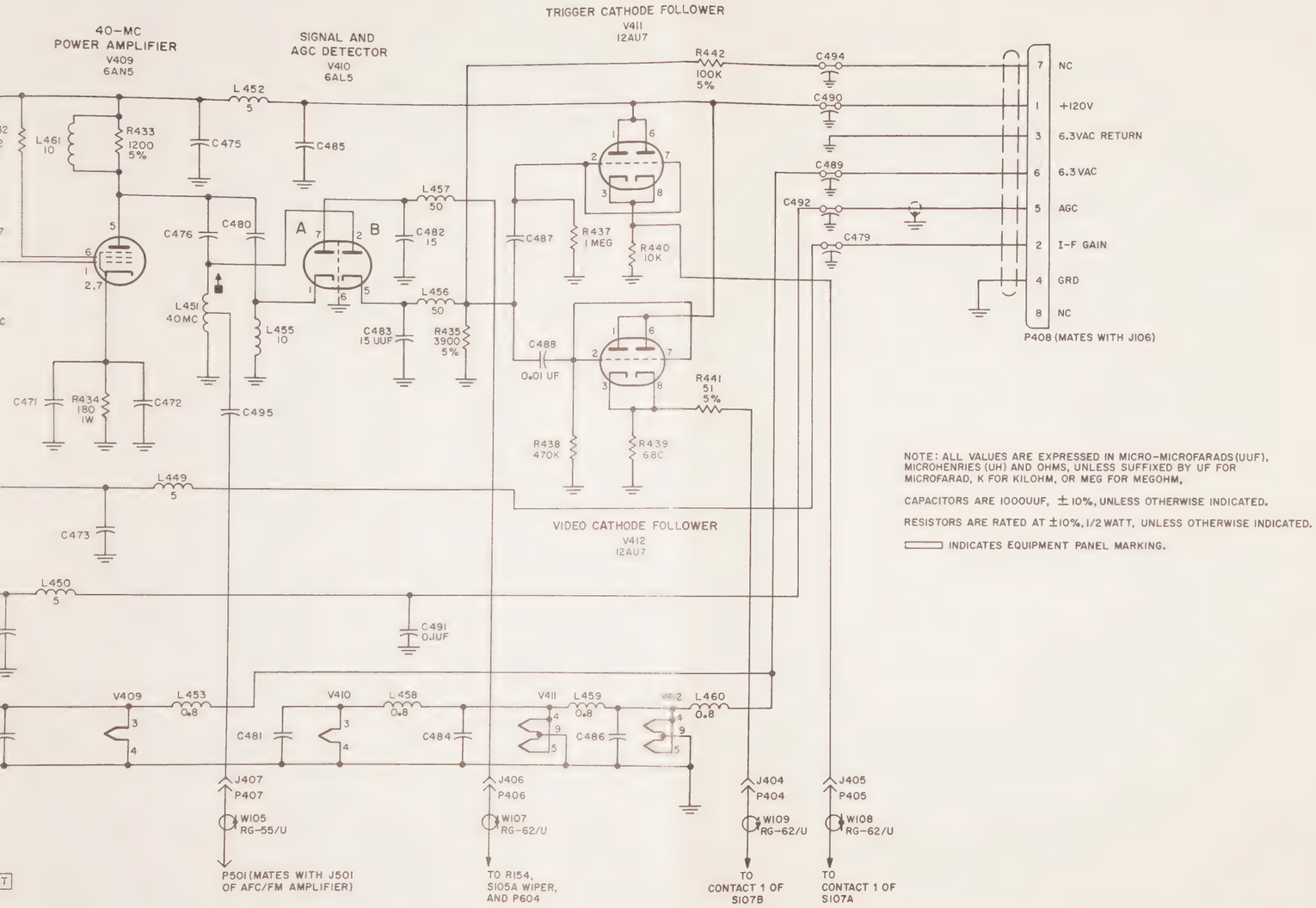


NOTES:

1. ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.
2. RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
3. R206 IS 180 OHMS, 1/2 WATT, ±10% IN MODEL RS-T TUNING UNIT SERIAL NOS. 458, 460, 468, 469, 485, AND 490.

Figure 5-10. 260/140-Mc Preamplifier Assembly A203, Schematic Diagram


140-MC I-F AMPLIFIER V401 6AK5
140-MC I-F AMPLIFIER V402 6AK5
140-MC I-F AMPLIFIER V403 6AK5
140-MC I-F AMPLIFIER V404 6AK5
THIRD MIXER V405 6AK5
40-MC I-F AMPLIFIER V406 6AK5
40-MC I-F AMPLIFIER V407 6AK5
40-MC I-F AMPLIFIER V408 6AK5
IF INPUT J104
W114 RG-55/U
P401 J401 C401 L401 0.156
R403 15K
R404 1800 5%
C404
L402
R407 15K
R408 1800 5%
C415
L410
R409 15K
R410 1800 5%
C423
L411
R414 15K
R415 1800 5%
C428
L420
R416 47K
R419 1000 5%
C439
L423
R421 10
R422 1000 5%
C450
L431
R424 10
R425 1000 5%
C457
L435
R428 10
R429 1200 5%
C465
L446
C402
C410
C411
C416
C420
C425
C429
C433
C441
C451
C458
L405 140MC
L409 140MC
L413 140MC
L419 140MC
C430
C438
C443 0.68
L425 40MC
L429 40MC
L437 40MC
R401 560
C405
R402 180
C403
C417
R405 180
C413
C426
R411 180
C421
C434
R413 180
C431
C448
R417 390
C444 5
R418 4700 5%
L426 180 MC
C446
R423 180
C455
R427 180
R431 180
C462
C470
L403
L408
L414
L417
L418
L428
L438
L441
C407
C414
C422
C432
C436
C447
C456
C463
L404
L407
L415
L416
L424
L427
L439
L440
C408
C409
C419
C427
C442
C445
C452
C459
V401
L421 0.8
V402
L422 0.8
V403
L432 0.8
V404
L433 0.8
V405
L434 0.8
V406
L443 0.8
V407
L444 0.8
V408
L445 0.8
C435
C437
C440
C449
C453
C461
C464
C468
J402
P402
W104 RG-55/U
P301 (MATES WITH J301 OF CRYSTAL-CONTROLLED LOCAL OSCILLATOR)
POLARAD DRAWING NO. H148459



NOTE: ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, K FOR KILOHM, OR MEG FOR MEGOHM.

CAPACITORS ARE 1000UUF, ±10%, UNLESS OTHERWISE INDICATED.

RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.

▭ INDICATES EQUIPMENT PANEL MARKING.

Figure 5-11. 140/40-Mc I-f Amplifier, Schematic Diagram

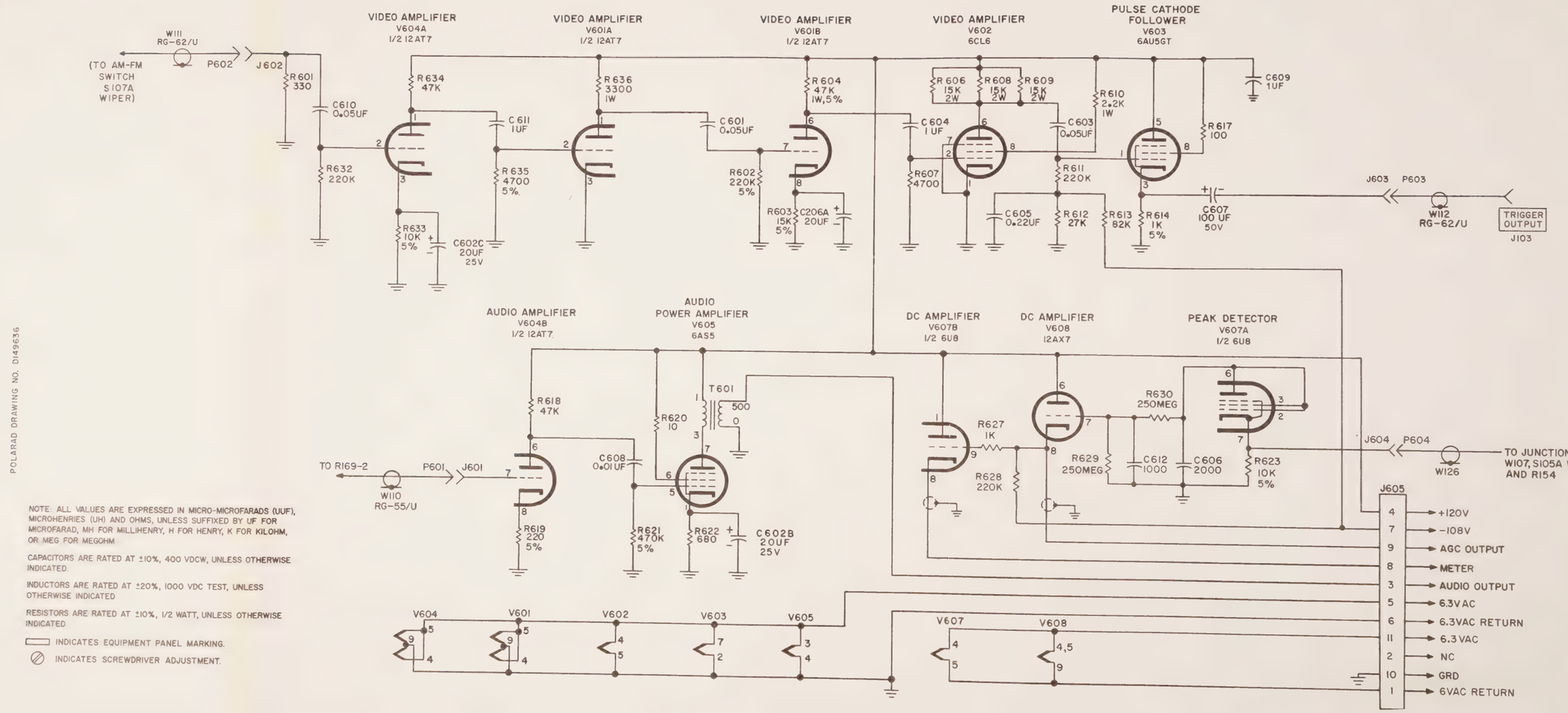
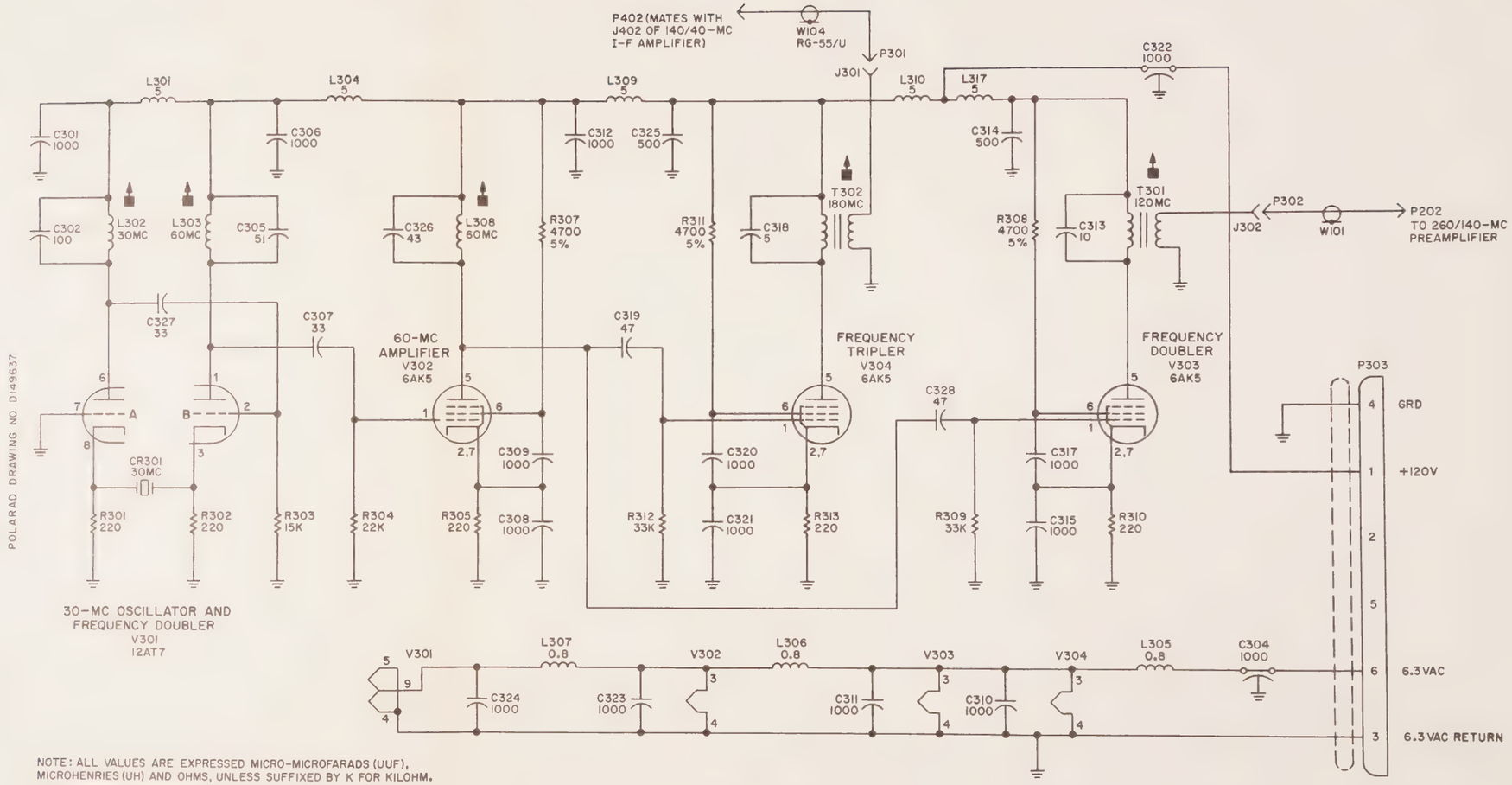


Figure 5-12. Detected Signal Amplifier, Schematic Diagram



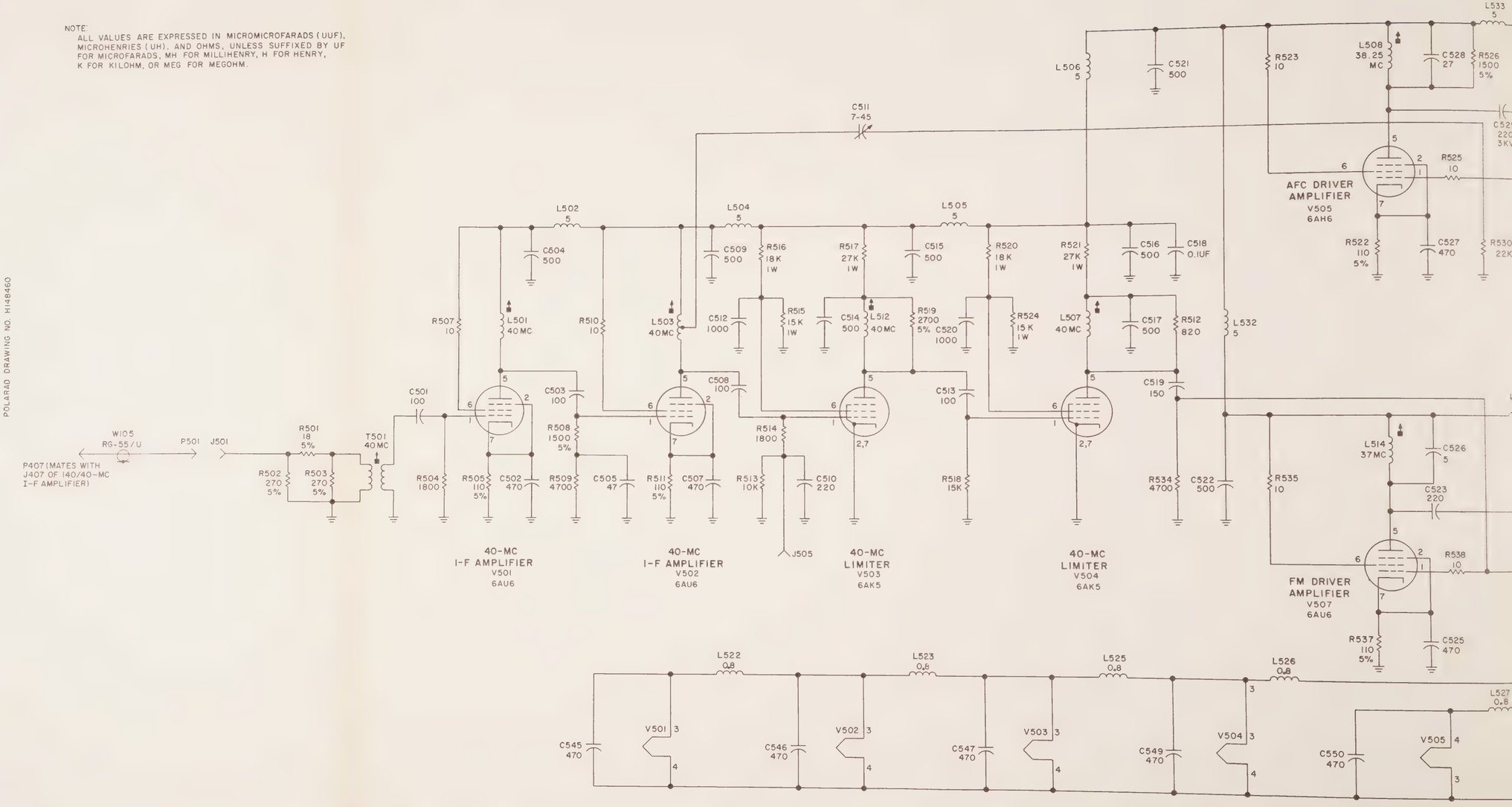
NOTE: ALL VALUES ARE EXPRESSED MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY K FOR KILOHM.

ALL RESISTORS ARE RATED AT 1/2 WATT, ± 10%, UNLESS OTHERWISE INDICATED.

Figure 5-13. Crystal-Controlled Local Oscillator, Schematic Diagram

NOTE:
ALL VALUES ARE EXPRESSED IN MICROMICROFARADS (UUF), MICROHENRIES (UH), AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARADS, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.

POLARAD DRAWING NO. H148460



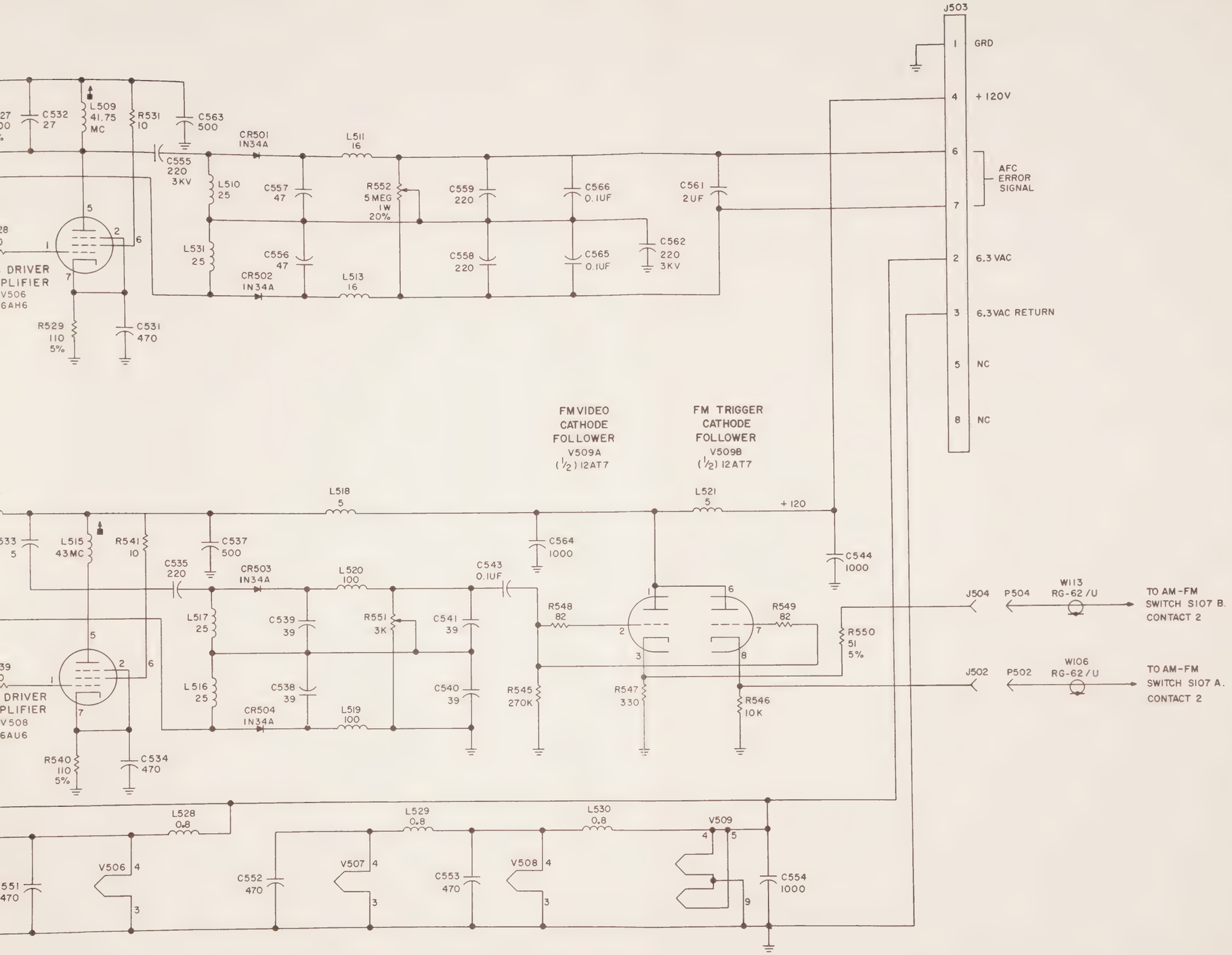
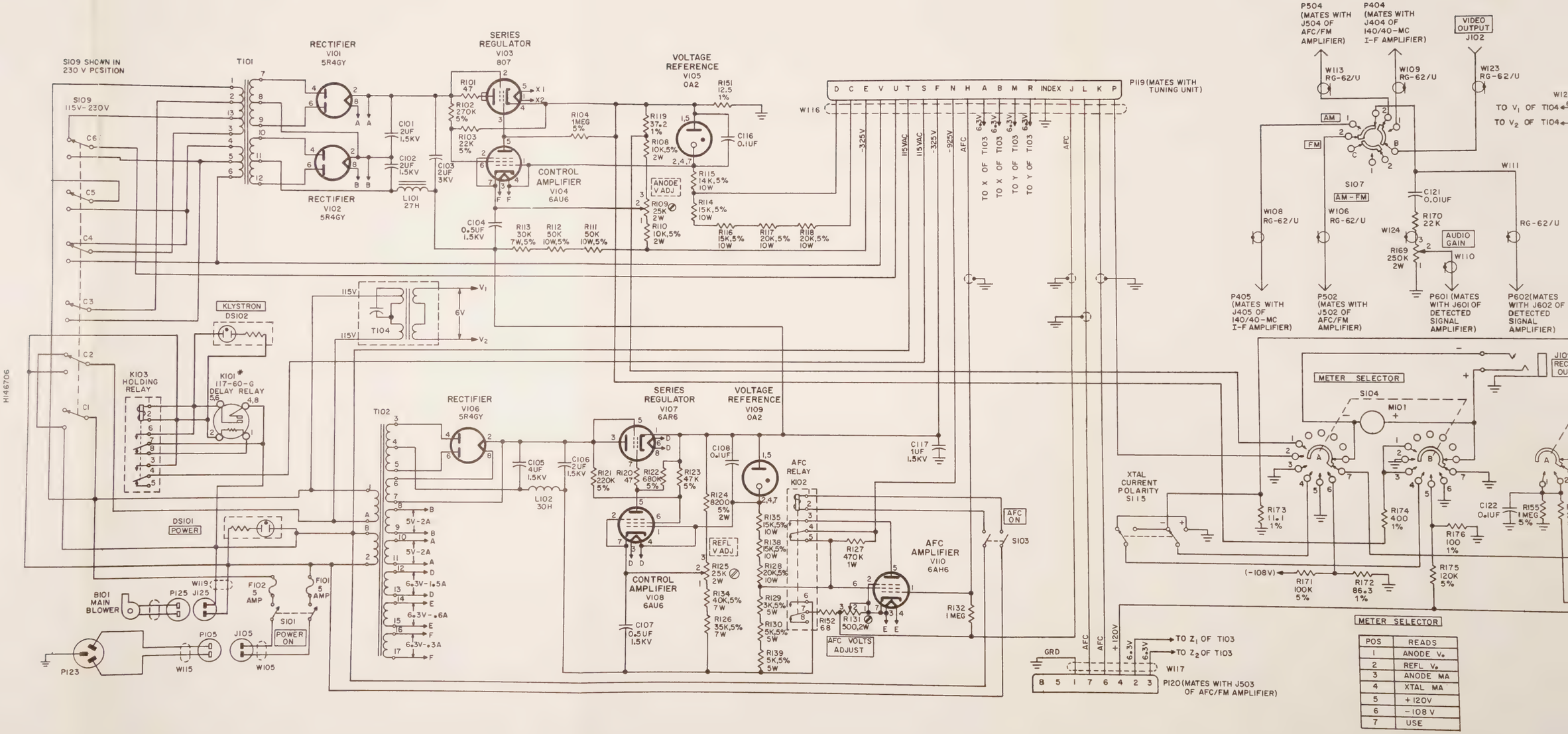
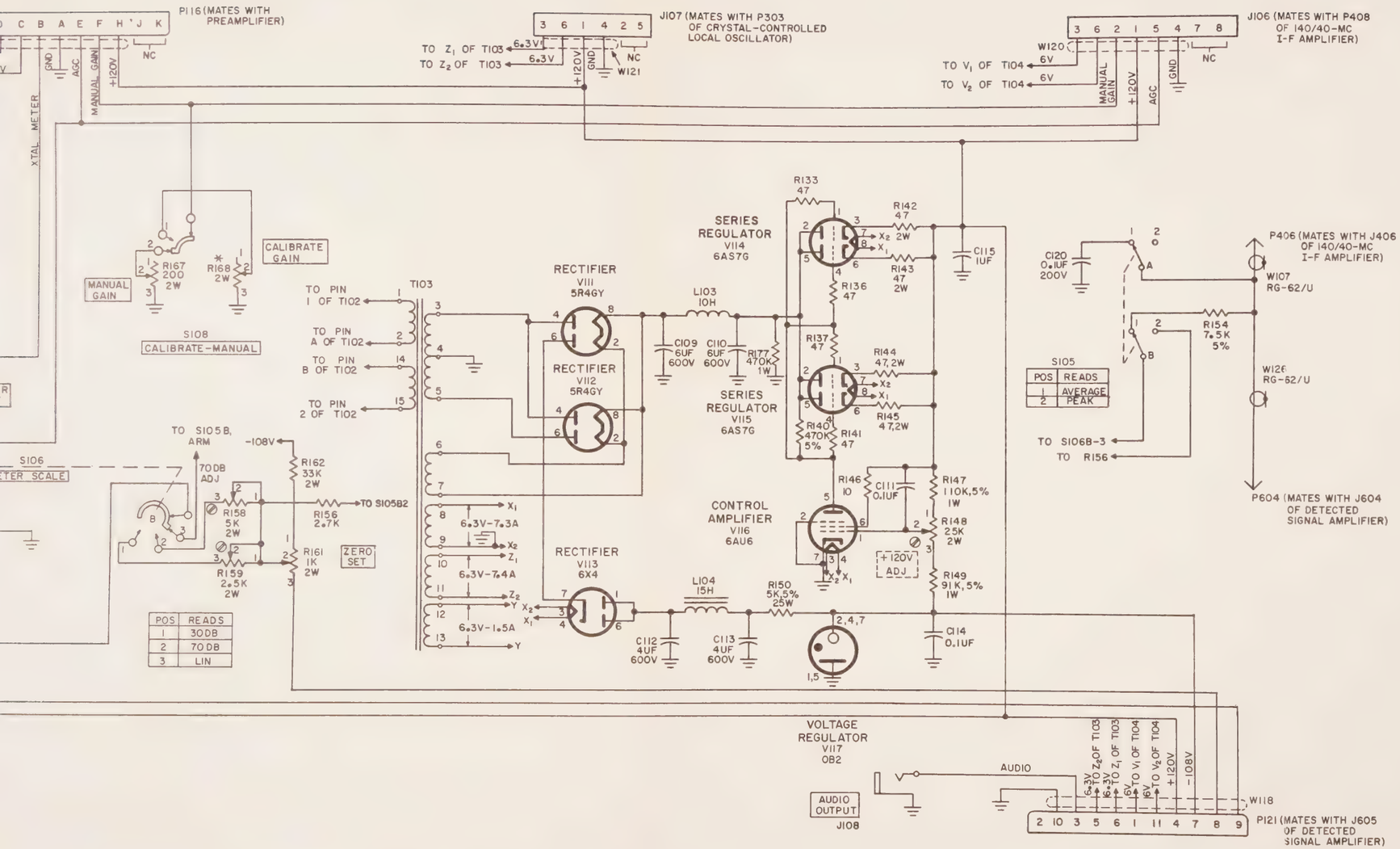


Figure 5-14. Afc/Fm Amplifier, Schematic Diagram



POS	READS
1	ANODE V_a
2	REFL V_a
3	ANODE MA
4	XTAL MA
5	+120V
6	-108 V
7	USE

H146706



NOTE: ALL VALUES ARE EXPRESSED IN MICRO-MICROFARADS (UUF), MICROHENRIES (UH) AND OHMS, UNLESS SUFFIXED BY UF FOR MICROFARAD, MH FOR MILLIHENRY, H FOR HENRY, K FOR KILOHM, OR MEG FOR MEGOHM.

CAPACITORS ARE RATED AT ±10%, 400 VDCW, UNLESS OTHERWISE INDICATED.

INDUCTORS ARE RATED AT ±20%, 1000 VDC TEST, UNLESS OTHERWISE INDICATED.

RESISTORS ARE RATED AT ±10%, 1/2 WATT, UNLESS OTHERWISE INDICATED.

* 50 OHMS FOR SERIAL NOS. 101 THRU 1601;
200 OHMS FOR SERIAL NOS. 1602 THRU 1676 AND 11-1 AND UP.

ALL ROTARY SWITCHES SHOWN AS VIEWED FROM REAR OF EQUIPMENT, IN EXTREME COUNTERCLOCKWISE POSITION.

INDICATES EQUIPMENT INTERNAL MARKING.

INDICATES EQUIPMENT FRONT PANEL MARKING.

⊘ INDICATES SCREWDRIVER ADJUSTMENT.

† DENOTES −1250V FOR MODEL RM-T, RX-T, RKS-T, AND RKU-T; −325V FOR MODEL RR-T, RL-T AND RS-T; −700V FOR MODEL RQ-T TUNING UNITS.

* DENOTES −1850V FOR MODEL RM-T, RX-T, RKS-T AND RKU-T; −925V FOR MODEL RR-T, RL-T, RS-T; −1300V FOR MODEL RQ-T TUNING UNITS.

K101 IS 115N060 FOR SERIAL NOS. 101 THRU 1676.

Figure 5-15. Model R-B1 Basic Unit Power Supplies and Front Panel Circuitry, Schematic Diagram

TABLE 5-1. 140/40-MC I-F AMPLIFIER, VOLTAGE AND RESISTANCE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number									
		1	2	3	4	5	6	7	8	9	
XV401	6AK5	0	+3.2	6vac	0	+115	+110	+3.2	—	—	Volts
		600	400	-	0	18K	30K	400	—	—	Ohms
XV402	6AK5	0	+3.2	6vac	0	+115	+110	+3.2	—	—	Volts
		6	400	-	0	18K	30K	400	—	—	Ohms
XV403	6AK5	0	+3.2	6vac	0	+115	+110	+3.2	—	—	Volts
		6	400	-	0	18K	30K	400	—	—	Ohms
XV404	6AK5	0	+3.2	6vac	0	+115	+110	+3.2	—	—	Volts
		6	400	-	0	18K	30K	400	—	—	Ohms
XV405	6AK5	0	+1.5	6vac	0	+115	+75	+1.5	—	—	Volts
		0	400	-	0	16K	60K	400	—	—	Ohms
XV406	6AK5	0	+3.2	6vac	0	+115	+118	+3.2	—	—	Volts
		3	400	-	0	16K	15K	400	—	—	Ohms
XV407	6AK5	0	+3.2	6vac	0	+115	+118	+3.2	—	—	Volts
		3	400	-	0	16K	15K	400	—	—	Ohms
XV408	6AK5	0	+1.7	6vac	0	+110	+118	+1.7	—	—	Volts
		0	180	-	0	18K	15K	180	—	—	Ohms
XV409	6AN5	0	+5.4	6vac	0	+118	+118	+5.4	—	—	Volts
		0	180	-	0	15K	15K	180	—	—	Ohms
XV410	6AL5	0	0	6vac	0	+0.1	0	-0.1	—	—	Volts
		0	0	-	0	4K	0	10K	—	—	Ohms
XV411	12AU7	+118	0	+7.4	6vac	6vac	+118	0	+7.4	0	Volts
		15K	1MEG	10K	-	-	15K	1MEG	10K	0	Ohms
XV412	12AU7	+118	0	+4.2	6vac	6vac	+118	0	+4.2	0	Volts
		15K	450K	700	0	-	15K	450K	700	0	Ohms

Notes:
1. Voltage readings taken with 20,000 ohm/volt VOM between pin and chassis ground;
2. Resistance measurements taken with power cable W115 removed;
3. Measurements taken with METER SCALE switch set to LIN, CALIBRATE MANUAL switch set to MANUAL, AVERAGE PEAK switch set to AVERAGE, AM FM switch set to FM, AUDIO GAIN control rotated fully clockwise, and MANUAL GAIN control rotated fully counterclockwise.

TABLE 5-2. DETECTED SIGNAL AMPLIFIER, VOLTAGE AND RESISTANCE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number									
		1	2	3	4	5	6	7	8	9	
XV601	12AT7	+90	-0.1	0	6vac	6vac	+105	0	+2.7	0	Volts
		19K	4.7K	0	-	-	65K	220K	15K	0	Ohms
XV602	6CL6	0	-0.2	+46	6vac	0	+65	0	+46	-0.2	Volts
		0	4.7K	15K	-	0	20K	0	15K	4.7K	Ohms
XV603	6AU5	-23	0	+1.3	-	+118	-	6vac	+118	—	Volts
		250K	0	1K	-	15K	-	-	15K	—	Ohms
XV604	12AT7	+105	0	+2.3	6vac	6vac	+50	-0.1	+0.3	0	Volts
		65K	220K	10K	-	-	65K	250K	220	0	Ohms
XV605	6AS7	+12.5	0	6vac	0	0	+118	+118	—	—	Volts
		700	470K	-	0	470K	15K	15K	—	—	Ohms
XV607	6U8	+118	-0.4	-0.4	6vac	0	-0.4	-0.1	+3	0.6	Volts
		15K	Inf	Inf	-	0	Inf	10K	80K	220K	Ohms
XV608	12AX7	0	0	0	6vac	6vac	+118	0	+0.6	0	Volts
		NC	NC	NC	-	-	15K	NC	220K	0	Ohms

Notes:
1. Voltage readings taken with 20, 000 ohm/volt VOM between pin and chassis ground;
2. Resistance measurements taken with power cable W115 removed;
3. Measurements taken with METER SCALE switch set to LIN, CALIBRATE MANUAL switch set to MANUAL, AVERAGE PEAK switch set to AVERAGE, AM FM switch set to FM, AUDIO GAIN control rotated fully clockwise, and MANUAL GAIN control rotated fully counterclockwise.

TABLE 5-3. CRYSTAL-CONTROLLED LOCAL OSCILLATOR, VOLTAGE AND RESISTANCE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number									
		1	2	3	4	5	6	7	8	9	
XV301	12AT7	+118	0	+0.9	0	0	+118	0	+0.9	6vac	Volts
		15K	15K	220	0	0	15K	0	220	-	Ohms
XV302	6AK5	0	+2.0	6vac	0	+118	+105	+2.0	—	—	Volts
		22K	220	-	0	15K	20K	220	—	—	Ohms
XV303	6AK5	-2.5	+1.7	6vac	0	+118	+105	+1.7	—	—	Volts
		33K	220	-	0	15K	20K	220	—	—	Ohms
XV304	6AK5	-2.5	+1.8	6vac	0	+118	+105	+1.8	—	—	Volts
		33K	220	-	0	15K	20K	220	—	—	Ohms

Notes: 1. Voltage readings taken with 20, 000 ohm/volt VOM between pin and chassis ground;
2. Resistance measurements taken with power cable W115 removed.

TABLE 5-4. AFC/FM AMPLIFIER, VOLTAGE AND RESISTANCE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number									
		1	2	3	4	5	6	7	—	—	
XV501	6AU6	0	+0.9	6vac	0	+118	+118	+0.9	—	—	Volts
		1.8K	110	-	0	15K	15K	110	—	—	Ohms
XV502	6AU6	0	+0.9	6vac	0	+118	+118	+0.9	—	—	Volts
		6.2K	110	-	0	15K	15K	110	—	—	Ohms
XV503	6AK5	-0.1	0	6vac	0	+35	+41	0	—	—	Volts
		12K	0	-	0	40K	12K	0	—	—	Ohms
XV504	6AK5	-0.1	0	6vac	0	+49	+45	0	—	—	Volts
		15K	0	-	0	40K	12K	0	—	—	Ohms
XV505	6AH6	0	+1.3	0	6vac	+118	+118	+1.3	—	—	Volts
		20K	110	0	-	15K	15K	110	—	—	Ohms
XV506	6AH6	0	+1.3	0	6vac	+118	+118	+1.3	—	—	Volts
		20K	110	0	-	15K	15K	110	—	—	Ohms
XV507	6AU6	0	+0.9	0	6vac	+118	+118	+0.9	—	—	Volts
		5K	110	0	-	15K	15K	110	—	—	Ohms
XV508	6AU6	0	+0.9	0	6vac	+118	+118	+0.9	—	—	Volts
		5K	110	0	-	15K	15K	110	—	—	Ohms
XV509	12AT7	+118	0	+1.2	6vac	6vac	+118	0	+2.8	0	Volts
		15K	300K	300	-	-	15K	300K	10K	0	Ohms

Notes:
1. Voltage readings taken with 20, 000 ohm/volt VOM between pin and chassis ground;
2. Resistance measurements taken with power cable W115 removed;
3. Measurements taken with METER SCALE switch set to LIN, CALIBRATE MANUAL switch set to MANUAL, AVERAGE PEAK switch set to AVERAGE, AM FM switch set to AM, AUDIO GAIN control rotated fully clockwise, and MANUAL GAIN control rotated fully counterclockwise.

TABLE 5-5. BASIC UNIT POWER SUPPLIES (MODEL RR-T, RL-T, OR RS-T TUNING UNIT INSTALLED), VOLTAGE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number								Remarks
		1	2	3	4	5	6	7	8	
XV101	5R4GY	NC	FIL 1	NC	620 vac*	NC	620 vac*	NC	FIL 1	
XV102	5R4GY	NC	FIL 1	NC	620 vac*	NC	620 vac*	NC	FIL 1	
XV103#	807	0	+340	-30	+0.5	6vac	-	-	-	
XV104	6AU6	-145	-135	FIL 2	FIL 2	-30	+5	-135	—	
XV105	0A2	+0.5	-145	NC	-145	+0.5	NC	-145	—	
XV106	5R4GY	NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to "off"
		NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to ON
XV107	6AR6	-325	NC	+65	NC	+65	FIL 2	-390	FIL 2	S109 set to "off"
		-325	NC	+70	NC	+70	FIL 2	-390	FIL 2	S109 set to ON
XV108	6AU6	-475	-465	FIL 2	FIL 2	-390	-290	-465	—	
XV109	0A2	-325	-475	NC	-475	-325	NC	-475	—	
XV110	6AH6	0	0	FIL 2	FIL 2	0	-930	0	—	S109 set to "off"
		-1160	-1160	FIL 2	FIL 2	-930	-1050	-1160	—	S109 set to ON
XV111	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV112	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV113	6X4	-330	NC	0	6vac	NC	-330	285 vac	-	
XV114	6AS7	+83	+235	+125	+83	+235	+125	0	6vac	
XV115	6AS7	+83	+235	+125	+83	+235	+125	0	6vac	
XV116	6AU6	-3.6	0	0	6vac	+83	+120	0	—	
XV117	0B2	0	-108	NC	-108	0	NC	-108	—	

Unless otherwise indicated, all voltages are with respect to chassis ground;
FIL 1 denotes 5vac as measured between pins so marked;
FIL 2 denotes 6vac as measured between pins so marked;
# denotes voltage from plate cap of V103 to chassis ground is +340 volts;
* denotes measurement from pin to pin;
NC denotes no connection to pin.

TABLE 5-6. BASIC UNIT POWER SUPPLIES (MODEL RM-T, RX-T, RKS-T, OR RKU-T TUNING UNIT INSTALLED), VOLTAGE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number								Remarks
		1	2	3	4	5	6	7	8	
XV101	5R4GY	NC	FIL 1	NC	1350 vac*	NC	1350 vac*	NC	FIL 1	
XV102	5R4GY	NC	FIL 1	NC	1350 vac*	NC	1350 vac*	NC	FIL 1	
XV103#	807	0	+420	-40	+0.5	6vac	-	-	-	
XV104	6AU6	-145	-135	FIL 2	FIL 2	-40	+7	-145	—	
XV105	0A2	+0.5	-145	NC	-145	+0.5	NC	-145	—	
XV106	5R4GY	NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to "off"
		NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to ON
XV107	6AR6	-1250	NC	-890	NC	-890	FIL 2	-1350	FIL 2	S109 set to "off"
		-1250	NC	-890	NC	-890	FIL 2	-1350	FIL 2	S109 set to ON
XV108	6AU6	-1400	-1400	FIL 2	FIL 2	-1350	-1250	-1400	—	
XV109	0A2	-1250	-1400	NC	-1400	-1250	NC	-1400	—	
XV110	6AH6	0	0	FIL 2	FIL 2	0	-1850	0	—	S109 set to "off"
		-2100	-2100	FIL 2	FIL 2	-1850	-2000	-2100	—	S109 set to ON
XV111	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV112	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV113	6X4	-330	NC	0	6vac	NC	-330	285 vac	-	
XV114	6AS7	+85	+235	+125	+85	+235	+125	0	6vac	
XV115	6AS7	+85	+235	+125	+85	+235	+125	0	6vac	
XV116	6AU7	-3.7	0	0	6vac	+85	+120	0	—	
XV117	0B2	0	-108	NC	-108	0	NC	-108	—	

Unless otherwise indicated, all voltages are with respect to chassis ground;
FIL 1 denotes 5vac as measured between pins so marked;
FIL 2 denotes 6vac as measured between pins so marked;
# denotes voltage from plate cap of V103 to chassis ground is +420 volts;
* denotes measurement from pin to pin;
NC denotes no connection to pin.

TABLE 5-7. BASIC UNIT POWER SUPPLIES (MODEL RQ-T TUNING UNIT INSTALLED), VOLTAGE MEASUREMENTS

Socket Ref. Sym. No.	Tube Type	Pin Number								Remarks
		1	2	3	4	5	6	7	8	
XV101	5R4GY	NC	FIL 1	NC	1000 vac*	NC	1000 vac*	NC	FIL 1	
XV102	5R4GY	NC	FIL 1	NC	1000 vac*	NC	1000 vac*	NC	FIL 1	
XV103#	807	0	+480	-43	+0.67	6vac	-	-	-	
XV104	6AU6	-150	-140	FIL 2	FIL 2	-42	+6.2	-140	—	
XV105	0A2	+0.67	-150	NC	-150	+0.67	NC	-150	—	
XV106	5R4GY	NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to "off"
		NC	FIL 1	NC	1900 vac*	NC	1900 vac*	NC	FIL 1	S109 set to ON
XV107	6AR6	-700	NC	-165	NC	-165	FIL 2	-795	FIL 2	S109 set to "off"
		-700	NC	-190	NC	-190	FIL 2	-790	FIL 2	S109 set to ON
XV108	6AU6	-830	-830	FIL 2	FIL 2	-795	-585	-820	—	
XV109	0A2	-700	-830	NC	-830	-700	NC	-830	—	
XV110	6AH6	0	0	FIL 2	FIL 2	0	-1300	0	—	S109 set to "off"
		-1500	-1500	FIL 2	FIL 2	-1200	-1400	-1500	—	S109 set to ON
XV111	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV112	5R4GY	NC	FIL 1	NC	590 vac*	NC	590 vac*	NC	FIL 1	
XV113	6X4	-330	NC	0	6vac	NC	-330	285 vac	-	
XV114	6AS7	+85	+235	+125	+85	+235	+125	0	6vac	
XV115	6AS7	+85	+235	+125	+85	+235	+125	0	6vac	
XV116	6AU6	-3.7	0	0	6vac	+85	+120	0	—	
XV117	0B2	0	-108	NC	-108	0	NC	-108	—	

Unless otherwise indicated, all voltages are with respect to chassis ground;
FIL 1 denotes 5vac as measured between pins so marked;
FIL 2 denotes 6vac as measured between pins so marked;
# denotes voltage from plate cap to chassis ground is +480 volts;
* denotes measurement from pin to pin;
NC denotes no connection to pin.

SECTION VI
PARTS LIST

6-1. INTRODUCTION.

6-2. This parts list provides an alpha-numerical listing, in reference symbol sequence of the replaceable electrical, certain electro-mechanical, and mechanical parts of the equipment.

6-3. ORDERING INFORMATION. Orders for parts should contain the following information:

a. Equipment name and model.
b. Serial number.
c. Reference symbol of part.
d. Manufacturer's part number and code.

6-4. HOW TO USE THE PARTS LIST.

6-5. An explanation of the structure of the parts lists, Tables 6-2 thru 6-14, and the meaning of the entries in the five columns are given in the following paragraphs. (See Figure 6-1.)

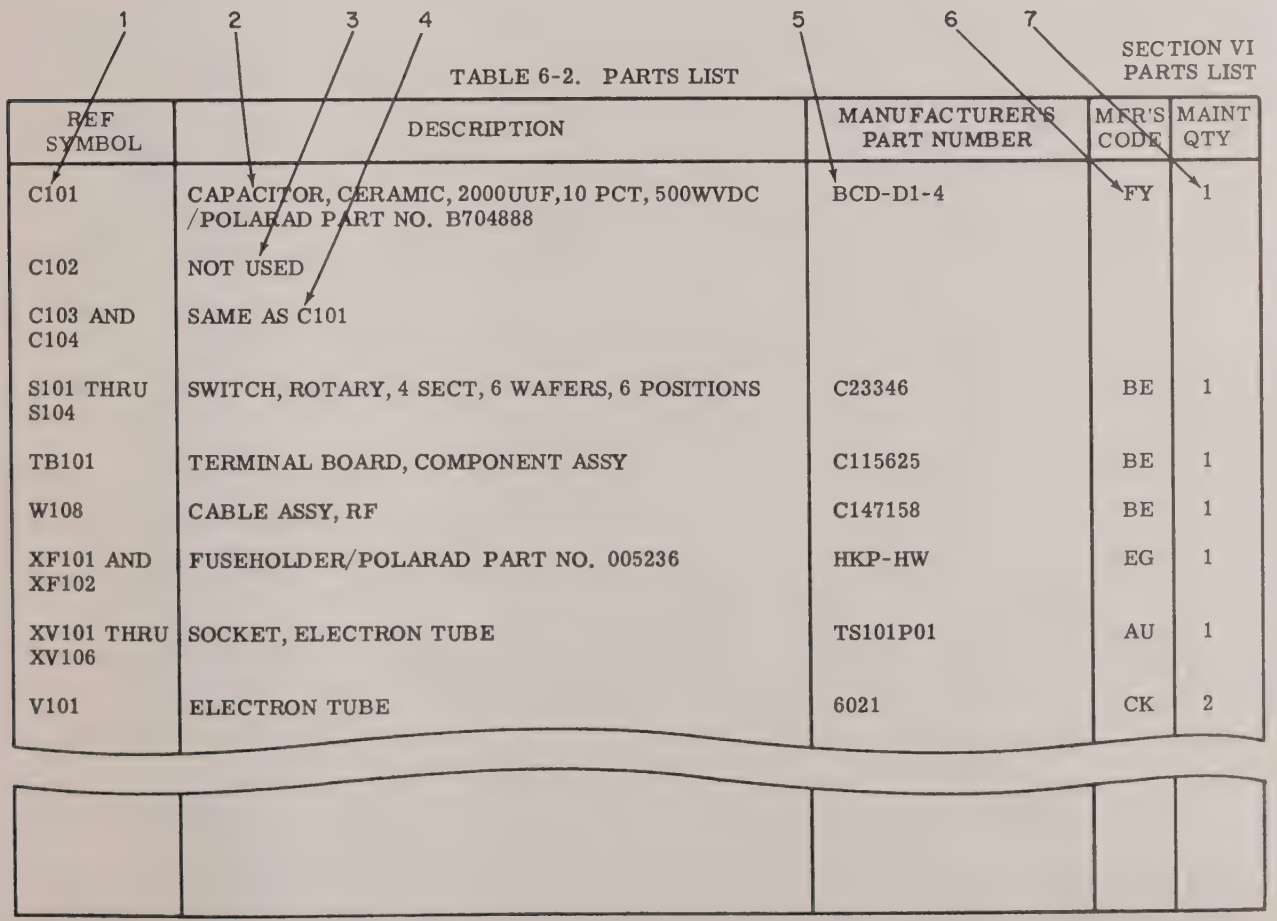


Figure 6-1. Parts List Example

6-6. REFERENCE SYMBOL COLUMN. The reference symbol column (1, Figure 6-1) contains the reference symbol assigned to each part, which also identifies the part on the schematic diagram or in an illustration. The listing is in alpha-numerical order.

6-7. DESCRIPTION COLUMN. The description column (2) contains the description for each part. When the same part is used more than once in the equipment, the second and subsequent listings for that part use the phrase "SAME AS ___" (4) in the description column and the remaining columns (5, 6, and 7) are left blank. When a reference symbol designation has not been used or its assignment has been cancelled, the description column contains the phrase "NOT USED" (3).

6-8. MANUFACTURER'S PART NUMBER COLUMN. The manufacturer's part number column (5) contains the part number assigned by the manufacturer of the part, except for "SAME AS ___" and "NOT USED" listings.

6-9. MANUFACTURER'S CODE COLUMN. The manufacturer's code column (6) contains a letter code identifying the manufacturer of the part. Table 6-1 contains a listing of the letter codes and the manufacturers names and addresses.

6-10. MAINTENANCE QUANTITY COLUMN. The maintenance quantity column (7) contains the recommended maintenance quantity for each part, based on a one year requirement for an equipment in operation for 10 hours a day throughout the year. The recommended maintenance quantities will provide a high degree of equipment reliability in areas where an adequate supply of replacement parts is not available. The recommended maintenance quantity is listed for the initial occurrence of the part in the parts list, but covers all subsequent listings.

6-11. To determine recommended maintenance quantity for periods other than one year, multiply the one-year quantity by the desired period, expressed in years.

6-12. To determine recommended maintenance quantity for operating periods other than 10 hours per day, use the equation given below.

$$MQ' = MQ \times \frac{HR_{op}}{10}$$

where: MQ = Maintenance quantity from Table 6-2

MQ' = Maintenance quantity for desired operating period

HR_{op} = Operating period in hours

Round off the quantity obtained to the nearest whole number.

TABLE 6-1. MANUFACTURER'S CODE

CODE	NAME AND ADDRESS
A	Aeronautical Standards Group, Dept. of Navy & Air Force, Washington, D. C.
B	Aerovox Corp., New Bedford, Mass.
C	Alden Products Co., Brockton, Mass.
D	Allen-Bradley Co., Milwaukee, Wis.
E	Amperite Co., New York, N. Y.
F	Amphenol Connector Division of Amphenol-Borg Electronics Corp., Chicago, Ill.
G	Belden Mfg. Co., Chicago, Ill.
H	Bendix Semiconductor Division of Bendix Corp., Holmdel, N. J.
J	Birnbach Radio Co., New York, N. Y.
K	Birtcher Corp., Los Angeles, Calif.
L	Boston Gear Works Division of Murray Co. of Texas, Boston, Mass.
M	Shallcross Mfg. Co., Selma, N. C.
N	Bourns Laboratories, Inc., Riverside, Calif.
P	Centralab Division of Globe-Union, Inc., Milwaukee, Wis.
Q	Chatam Electronics Division of Tung-Sol Electric, Inc., Livingston, N. J.
R	Cinch Mfg. Co., Division of United-Carr Fastener Corp., Chicago, Ill.
S	Clarostat Mfg. Co., Inc., Dover, N. H.
T	Condenser Products Co., Brooksville, Fla.
U	Cornell-Dubilier Electric Corp., Newark, N. J.
V	Dialight Corp., Brooklyn, N. Y.
W	Hugh H. Eby Co., Philadelphia, Pa.
X	Elco Corp., Philadelphia, Pa.
Y	Erie Resistor Corp., Erie, Pa.
Z	General Electric Co., Miniature Lamp Department of Lamp Division of Consumer Products Group, Cleveland, Ohio
AA	General Electric Co., Semi-Conductor Products Department of Electronic Components Division of Electronic, Atomic and Defense Systems Group, Syracuse, N. Y.
AB	General Transistor Western Corp., Los Angeles, Calif.
AC	Good-All Electric Mfg. Co., Ogallala, Nebr.
AD	Hammarlund Co., Inc., New York, N. Y.
AE	Harvey Hubbell, Inc., Bridgeport, Conn.
AF	Helipot Division of Beckman Instruments,Inc., Fullerton, Calif.
AG	Hopkins Engineering Co., San Fernando, Calif.
AH	Hughes Products Division of Hughes Aircraft Co., Newport Beach, Calif.
AJ	International Resistance Co., Philadelphia, Pa.
AK	Jan Hardware Mfg. Co., Inc., Long Island City, N. Y.
AL	JBT Instruments Inc., New Haven, Conn.
AM	Kenyon Transformer Co., Inc., Jersey City, N. J.
AN	Kurman Electric Co., Inc., Brooklyn, N. Y.
AP	Littelfuse, Inc., Des Plaines, Ill.
AQ	Mallory Battery Co., North Tarrytown, N. Y.
AR	Metex Electronics Corporation, Clark, N. J.
AS	James Millen Mfg. Co., Inc., Malden, Mass.
AT	J. W. Miller Co., Los Angeles, Calif.
AU	Military Specifications
AV	Military Standards
AW	Minor Rubber Co., Inc., Bloomfield, N. J.
AX	Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.
AY	New Departure Division of General Motors Corp., Bristol, Conn.
AZ	Ohmite Mfg. Co., Skokie, Ill.
BA	Patton MacGuyer Co., Providence, R. I.
BB	Parker Kalon Division of General American Transportation Corp., Clifton, N. J.
BC	Pic Design Corp., East Rockaway, N. Y.

TABLE 6-1. MANUFACTURER'S CODE (CONT'D)

CODE	NAME AND ADDRESS
BD	Plastic Capacitors, Inc., Chicago, Ill.
BE	Polarad Electronics Corp., Long Island City, N.Y.
BF	Potter and Brumfield Division of American Machine and Foundry Co., Princeton, Ind.
BG	Pyramid Electric Co., Darlington, S.C.
BH	Raytheon Co., Industrial Components Division, Industrial Tube Operation, Newton, Mass.
BJ	RCA Semiconductor and Materials Division of Radio Corp. of America, Somerville, N.J.
BK	Ripley Co., Inc., Middletown, Conn.
BL	Sangamo Electric Co., Springfield, Ill.
BM	Shakeproof Division of Illinois Tool Works, Elgin, Ill.
BN	Sprague Electric Co., North Adams, Mass.
BP	Staver Co., Inc., Bay Shore, Long Island, N.Y.
BQ	Sterling Transformer Corp., Brooklyn, N.Y.
BR	Technitrol Engineering Co., Philadelphia, Pa.
BS	Telewave Laboratories, Inc., Long Island City, N.Y.
BT	Times Facsimile Corp., New York, N.Y.
BU	Transitron Electronic Corp., Wakefield, Mass.
BV	Ucinite Co., Newtonville, Mass.
BW	United Transformer Co., New York, N.Y.
BX	Utah Radio Products Corp., Huntington, Ind.
BY	Vector Mfg. Co., Houston, Tex.
BZ	Victory Engineering Corp., Springfield, N.J.
CA	Waldes Kohinoor, Inc., Long Island City, N.Y.
CB	Weckesser Co., Chicago, Ill.
CC	Winchester Electronics Co., Inc., Norwalk, Conn.
CD	Cutler-Hammer, Inc., Milwaukee, Wis.
CE	Olsen Machine and Tool Co., North Abington, Mass.
CF	Cannon Electric Co., Los Angeles, Calif.
CG	Arco Electronics, Inc., Great Neck, N.Y.
CH	Cambridge Thermionic Corp., Cambridge, Mass.
CJ	Sylvania Electric Products, Inc., Semiconductor Division, Woburn, Mass.
CK	Commercially Available Component
CL	Stackpole Carbon Co., St. Marys, Pa.
CM	Astron Co., East Newark, N.J.
CN	Sarkes Tarzian, Inc., Bloomington, Ind.
CP	Arrow Hart and Hegeman Electric Co., Hartford, Conn.
CQ	Radio Corp. of America, New York, N.Y.
CR	Allied Control Co., Inc., New York, N.Y.
CS	Sylvania Electric Products, Inc., New York, N.Y.
CT	Leach Corp., Leach Relay Co. Division, Los Angeles, Calif.
CU	Triplett Electrical Instrument Co., Bluffton, Ohio.
CV	Bliley Electric Co., Inc., Erie, Pa.
CW	Switchcraft, Inc., Chicago, Ill.
CX	Industrial Products Co., Division of Amphenol-Borg Electronics Corp., Danbury, Conn.
CY	Mepco Division of Sessions Clock Co., Morristown, N.J.
CZ	Resistance Products Co., Harrisburg, Pa.
DA	Continental-Wirt Electronics Corp., Philadelphia, Pa.
DB	Ward Leonard Electric Co., Mount Vernon, N.Y.
DC	Superex Electronics Corp., Yonkers, N.Y.
DD	Oak Mfg. Co., Crystal Lake, Ill.
DE	National Radio Co., Inc., Melrose, Mass.

TABLE 6-1. MANUFACTURER'S CODE (CONT'D)

CODE	NAME AND ADDRESS
DF	Wright Electronics, Inc., Kansas City, Mo.
DG	Torrington Mfg. Co., Torrington, Conn.
DH	Union Electronics, Long Island City, N.Y.
DJ	Applied Research, Inc., Port Washington, N.Y.
DK	Ferroxcube Corp. of America, Saugerties, N.Y.
DL	Technology Instrument Corp., Acton, Mass.
DM	Allen B. DuMont Laboratories, Inc., New York, N.Y.
DN	Amperex Electronic Co., Division of North American Philips Co., Inc., Hicksville, N.Y.
DP	Industrial Condenser Corp., Chicago, Ill.
DQ	International Rectifier Corp., El Segundo, Calif.
DR	CTS Corp., Elkhart, Ind.
DS	General Radio Co., West Concord, Mass.
DT	Microlab, Inc., Livingston, N.J.
DU	Comar Electric Co., Chicago, Ill.
DV	Film Capacitors, Inc., New York, N.Y.
DW	FXR Division of Amphenol-Borg Electronics Corp., Danbury, Conn.
DX	Britton Electronics Corp., Mount Vernon, N.Y.
DY	Chicago Standard Transformer Corp., Chicago, Ill.
DZ	P. R. Mallory and Co., Inc., Indianapolis, Ind.
EA	Automatic Metal Products Co., Brooklyn, N.Y.
EB	Dale Electronics, Inc., Columbus, Nebr.
EC	Gulton Industries, Inc., Metuchen, N.J.
ED	International Electronic Industries, Inc., Nashville, Tenn.
EE	Clairtron Mfg. Co., Orange, N.J.
EF	Technical Apparatus Builders, New York, N.Y.
EG	Bussmann Fuse Division of McGraw-Edison Co., St. Louis, Mo.
EH	The Superior Electric Co., Bristol, Conn.
EJ	Rotron Mfg. Co., Inc., Woodstock, N.Y.
EK	Jeffers Electronics Division of Speer Carbon Co., DuBois, Pa.
EL	JFD Electronics Corp., Brooklyn, N.Y.
EM	Essex Electronics Division of Nytronics Inc., Berkeley Heights, N.J.
EN	Torotel, Inc., Kansas City, Mo.
EP	Texas Instruments Inc., Dallas, Texas
EQ	Wells Electronics Co., South Bend, Ind.
ER	Thordarson-Meissner Division of Maguire Industries, Inc., Mount Carmel, Ill.
ES	Piezo Crystal Co., Carlisle, Pa.
ET	Pacific Semiconductors, Inc., Hawthorne, Calif.
EV	Fasco Industries, Inc., Rochester, N.Y.
EW	Triad Transformer Corp., Venice, Calif.
EX	National Tel Tronics Corp., Yonkers, N.Y.
EY	Carling Electric, Inc., Hartford, Conn.
EZ	E.F. Johnson Co., Waseca, Minn.
FA	Thomas Electronics, Inc., Passaic, N.J.
FB	Merit Coil and Transformer Corp., Hollywood, Fla.
FC	Aladdin Electronics Division of Aladdin Industries, Inc., Nashville, Tenn.
FD	Kulka Electric Corp., Mount Vernon, N. Y.
FE	Sperry Semiconductor Division of Sperry Rand Corp., Norwalk, Conn.
FF	Corning Glass Works, Electronic Components Department, Bradford, Pa.
FG	Duncan Electronics, Inc., Santa Ana, Calif.
FH	Advance Electronics Laboratories, Inc., Passaic, N.J.

TABLE 6-1. MANUFACTURER'S CODE (CONT'D)

CODE	NAME AND ADDRESS
FJ	Fastex Division of Illinois Tool Works, Des Plaines, Ill.
FK	Motorola, Inc., Semiconductor Products Division, Phoenix, Ariz.
FL	Electro Motive Mfg. Co., Willimantic, Conn.
FM	Varian Associates, Palo Alto, Calif.
FN	Quality Components, Inc., St. Marys, Pa.
FP	Automatic Mfg. Corp., Newark, N.J.
FQ	Electra Mfg. Co., Kansas City, Mo.
FR	Dage Electric Co., Inc., Beech Grove, Ind.
FS	The Cornish Wire Co., New York, N.Y.
FT	RLC Electronics, Inc., Mamaroneck, N.Y.
FU	Fairchild Camera and Instrument Corp., Semiconductor Division, Mountain View, Calif.
FV	Burnell and Co., Inc., Pelham Manor, N.Y.
FW	Dearborn Electronic Laboratories, Inc., Orlando, Fla.
FX	Weston Instruments, Division of Daystrom, Inc., Newark, N.J.
FY	HI-Q Division of Aerovox Corp., Myrtle Beach, S.C.
FZ	Electric Regulator Corp., South Norwalk, Conn.
GA	Simpson Electric Co., Chicago, Ill.
GB	Control Switch Division, Controls Co. of America, Chicago, Ill.
GC	Semicon, Inc., Bedford, Mass.
GD	Filtron Co., Inc., Flushing, Long Island, N.Y.
GE	Rotating Components, Inc., Brooklyn, N.Y.
GF	Transco Products, Inc., Los Angeles, Calif.
GG	Thompson Ramo Wooldridge, Inc., Cleveland, Ohio
GH	PRD Electronics, Inc., Brooklyn, N.Y.
GJ	Solitron Devices, Inc., Norwood, N.J.
GK	Valpey Crystal Co., Holliston, Mass.
GL	Sage Laboratories, Inc., Natick, Mass.
GM	J.H. Williams and Co., Buffalo, N.Y.
GN	Kings Electronics Co., Inc., Tuckahoe, N.Y.
GP	ITT Federal Division of International Telephone and Telegraph Corp., Clifton, N.J.
GQ	Herman H. Smith, Inc., Brooklyn, N.Y.
GR	Leecraft Mfg. Co., Inc., New York, N.Y.
GS	Adel Division of General Metals Corp., Huntington, W. Va.
GT	Augat Bros., Inc., Attleboro, Mass.
GU	Master Specialties Co., Los Angeles, Calif.
GV	Radio Cores, Inc., Oak Lawn, Ill.
GW	Camloc Fastener Corp., Paramus, N. J.
GX	Zierick Mfg. Corp., New Rochelle, N. Y.
GY	Phelps Dodge Copper Products Corp., Inca Mfg. Division, Fort Wayne, Ind.
GZ	Tung-Sol Electric, Inc., Newark, N. J.
HA	General Ceramics Corp., Keasbey, N. J.
HB	Southco Division of South Chester Corp., Lester, Pa.
HC	Heyman Mfg. Co., Kenilworth, N. J.
HD	International Electronic Research Corp., Burbank, Calif.
HE	Technitrol Engineering Co., Philadelphia, Pa.
HF	Polyphase Instrument Co., Bridgeport, Montgomery County, Pa.
HG	General Electric Co., Receiving Tube Department of Electronic Components Division, Clifton, N. J.
HH	Alpha Wire Corp., New York, N. Y.
HJ	Metal Textile Corp., Roselle, N. J.
HK	Speer Resistor Division of Speer Carbon Co., Bradford, Pa.

TABLE 6-1. MANUFACTURER'S CODE (CONT'D)

CODE	NAME AND ADDRESS
HL	Curtiss-Wright Corp., Electronics Division, East Patterson, N. J.
HM	Mueller Electric Co., Cleveland, Ohio
HN	Bergen Laboratories, Patterson, N. J.
HP	Sherold Crystals, Inc., Kansas City, Mo.
HQ	Hewlett-Packard Co., Palo Alto, Calif.
HR	Keystone Electronics Corp., New York, N. Y.
HS	Hupp Electronics, Division of Hupp Corp., Forest Park, Ill.
HT	Continental Connector Corp., Division of De Jur Amsco Corp., Long Island City, N. Y.
HU	Arnold Stevens Co., Inc., Boston, Mass.
HV	Grant Pulley and Hardware Co., West Nyack, N. Y.
HW	Filmohm Corp., New York, N. Y.
HX	Freed Transformer Co., Brooklyn, N. Y.
HY	Trimm, Inc., Libertyville, Ill.
HZ	Minneapolis Honeywell Regulator Co., Precision Meter Division, Manchester, N. H.
JA	Edwin B. Stimpson Co., Inc., Brooklyn, N. Y.
JB	Burndy Corp., Norwalk, Conn.
JC	Bradley Industries, Chicago, Ill.
JD	Aemco, Inc., Mankato, Minn.
JE	Molon Motors and Coil Corp., Chicago, Ill.
JF	Beckman Instruments, Inc., Fullerton, Calif.
JG	National Lock Washer Co., Newark, N. J.
JH	Tinnerman Products, Inc., Cleveland, Ohio
JJ	General Instrument Corp., Semiconductor Division, Newark, N. J.
JK	Vector Electronic Co., Glendale, Calif.
JL	Western Electric Co., Inc., New York, N. Y.
JM	Amp, Inc., Harrisburg, Pa.
JN	G. C. Electronics Mfg. Co., Rockford, Ill.
JP	Redmond Co., Inc., Owosso, Mich.
JQ	Philadelphia Handle Co., Camden, N. J.
JR	Gremar Mfg. Co., Inc., Wakefield, Mass.
JS	Monadnock Mills, San Leandro, Calif.
JT	Instrument Specialties Co., Inc., Little Falls, N. J.
JU	Connecticut Hard Rubber Co., New Haven, Conn.
JV	Veeder Root, Inc., Hartford, Conn.
JW	Beemer Engineering Co., Philadelphia, Pa.
JX	Breeze Corporation, Inc., Union, N. J.
JY	Remler Co., Ltd., San Francisco, Calif.
JZ	TA Mfg. Corp., Los Angeles, Calif.
KA	Sigma Instruments, Inc., South Braintree, Mass.
KB	Standard Transformer Corp., Chicago, Ill.
KC	Thomson Industries, Inc., Long Island City, N. Y.
KD	United Electronics Co., Newark, N. J.
KE	U. S. Engineering Co., Long Island City, N. Y.
KF	Advance Relays, Electronics Division of Elgin National Watch Co., Burbank, Calif.
KG	Weinschel Engineering Co., Kensington, Md.
KH	Muter Co., Chicago, Ill.
KJ	Armstrong Bros. Tool Co., Chicago, Ill.
KK	Electro-Flex Heat, Inc., Hartford, Conn.
KL	Ace Electronics Associates, Inc., Somerville, Mass.
KM	Daystrom Transicoil Corp., Worcester, Pa.
KN	Servomechanisms, Inc., Westbury, N. Y.
KP	Tech Laboratories, Palisades Park, N. J.
KQ	Spectrol Electronics Division of Carrier Corp., San Gabriel, Calif.
KR	Grayhill, Inc., La Grange, Ill.
KS	Kearfott Division of General Precision, Inc., Little Falls, N. J.

TABLE 6-1. MANUFACTURER'S CODE (CONT'D)

CODE	NAME AND ADDRESS
KT	Argonne Electronic Mfg. Corp., New York, N.Y.
KU	Globe Industries, Inc., Dayton, Ohio
KV	Pyrofilm Resistor Co., Morristown, N.J.
KW	Donald P. Mossman, Inc., Brewster, N.Y.
KX	IMC Magnetics Corp., Eastern Division, Westbury, N.Y.
KY	Narda Microwave Corp., Mineola, N.Y.
KZ	Magnavox Co., Fort Wayne, Ind.
LA	Hill Electronic Engineering and Mfg. Co., Inc., Mechanicsburg, Pa.
LB	Electronic Specialty Co., Los Angeles, Calif.
LC	Electronic Research Associates, Inc., Cedar Grove, N.J.
LD	Ferranti Electric, Inc., Plainview, N.Y.
LE	C.P. Clare and Co., Chicago, Ill.
LF	Jettron Products, Inc., Hanover, N.J.
LG	Filtors, Inc., Port Washington, N.Y.
LH	Datex Corp., Monrovia, Calif.
LJ	Microwave Development Laboratories, Inc., Wellesley, Mass.
LK	Power Designs, Inc., Richmond Hill, N. Y.
LL	Aircraft Radio Corp., Boonton, N.J.
LM	General Electric Co., Capacitor Department of Transformer Division of Apparatus Group, Hudson Falls, N.Y.
LN	Waldom Electronics, Inc., Chicago, Ill.
LP	Daven Co., Livingston, N.J.
LQ	Lavelle Rubber Co., Chicago, Ill.
LR	Industrial Electronic Hardware Corp., New York, N.Y.
LS	Wilrite Products, Inc., Cleveland, Ohio.
LT	Bodine Electric Co., Chicago, Ill.
LU	Haydon Division of General Time Corp., Torrington, Conn.
LV	Alfred Electronics, Palo Alto, Calif.
LW	Electronic Devices, Inc., New Rochelle, N.Y.
LX	Durant Mfg., Co., Milwaukee, Wis.
LY	Heinemann Electric Co., Trenton, N.J.

TABLE 6-2. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL R-B1 BASIC UNIT			
A1	MODEL R-B1 CASE AND BASIC RECEIVER ASSY	C144983	BE	1
A101	BASIC RECEIVER ASSY	D21339	BE	1
A102	CENTER SUPPORT COMPONENT ASSY	C23806	BE	1
A103	FRONT SUPPORT COMPONENT ASSY	C23802	BE	1
A104	FRONT PANEL ASSY	D129441	BE	1
A105*	RELAY AND ADAPTER ASSY, CONSISTS OF CP101 AND K101 PART NO. 117-60-G	A147917	BE	1
A301	LOCAL OSCILLATOR ASSY,CRYSTAL-CONTROLLED	C102126	BE	1
A401	AMPLIFIER ASSY,IF,140/40MC	C21391	BE	1
A501	AMPLIFIER ASSY,AFC/FM	D101347	BE	1
A601	AMPLIFIER ASSY,DETECTED SIGNAL	D21437	BE	1
B101	FAN ASSY,AXIAL,115VAC,50-60CPS	C22555	BE	1
B101A	MOTOR,FAN,SYNCHRONOUS,115VAC,60CPS,CCW /POLARAD PART NO. B130810/PART OF B101	X-2125-1	JE	1
B101B	IMPELLER,FAN,AXIAL,CW,HUB IN FRONT /POLARAD PART NO. 511503/PART OF B101	0-621-4	DG	1
B101C	BRACKET ASSY,PART OF B101	C20552	BE	1
CP101*	RELAY ADAPTER AND SOCKET /POLARAD PART NO. B708479/PART OF A105	B8-N	JK	1
CR301	CRYSTAL,QUARTZ,30MC,0.005 PCT	CR-23/U-30MC	AU	1
CR501 THRU CR504	SEMICONDUCTOR DEVICE,DIODE,CRYSTAL	1N34A	CK	20
C101 AND C102	CAPACITOR,PAPER,2UF,PLUS 20 PCT, MINUS 10 PCT,1500WVDC	CP70B1FH205V	AU	1
C103	CAPACITOR,PLASTIC,2UF,PLUS 20 PCT,MINUS 10 PCT,3000WVDC/POLARAD PART NO. B707347	EP30-205	BD	1
C104	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1500WVDC	CP70B1EH504V	AU	1
C105	CAPACITOR,PAPER,4UF,10 PCT,1500WVDC	CP70B1FH405K	AU	1
C106	SAME AS C101			
C107	SAME AS C104			
C108	CAPACITOR,PAPER,0.1UF,20 PCT,400WVDC	CN43AE104M	AU	1
C109 AND C110	CAPACITOR,PAPER,6UF,PLUS 20 PCT, MINUS 10 PCT,600WVDC	CP70B1FF605V	AU	1
C111	SAME AS C108			
C112 AND C113	CAPACITOR,PAPER,4UF,PLUS 20 PCT, MINUS 10 PCT,600WVDC	CP70B1FF405V	AU	1
C114	SAME AS C108			
C115	CAPACITOR,PAPER,1UF,PLUS 20 PCT,MINUS 10 PCT, 400WVDC	CP54B1FE105V	AU	1

* See Page 6-30

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C116	SAME AS C108			
C117	CAPACITOR,PAPER,1UF,PLUS 20 PCT,MINUS 10 PCT, 1500WVDC	CP41B1FH105V	AU	1
C118 AND C119	NOT USED			
C120	CAPACITOR,PLASTIC,0.1UF,20 PCT,200WVDC /POLARAD PART NO. B508728	160P10402	BN	1
C121	CAPACITOR,PLASTIC,0.01UF,20 PCT,200WVDC /POLARAD PART NO. B508716	160P10202	BN	1
C122	SAME AS C120			
C301	CAPACITOR,MICA,1000UUF,10 PCT,500WVDC /POLARAD PART NO. B706815	370FC102K	Y	3
C302	CAPACITOR,MICA,100UUF,5 PCT,500WVDC	CM15E101J	AU	1
C303	NOT USED			
C304	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C305	CAPACITOR,CERAMIC,51UUF,5 PCT,500WVDC	CC30CG510J	AU	1
C306	SAME AS C301			
C307	CAPACITOR,CERAMIC,33UUF,10 PCT,600WVDC /POLARAD PART NO. B709706	831U2M330K	Y	1
C308 THRU C311	CAPACITOR,CERAMIC,1000UUF,GMV,600WVDC /POLARAD PART NO. B709679	801Z5V102P	Y	4
C312	SAME AS C301			
C313	CAPACITOR,CERAMIC,10UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. B709752	301C0G100C	Y	1
C314	CAPACITOR,MICA,500UUF,10 PCT,500WVDC /POLARAD PART NO. B706816	370FC501K	Y	2
C315	SAME AS C308			
C316	NOT USED			
C317	SAME AS C308			
C318	CAPACITOR,CERAMIC,5UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. B709749	301C0H509C	Y	1
C319	CAPACITOR,CERAMIC,47UUF,10 PCT,600WVDC /POLARAD PART NO. B709708	831U2M470K	Y	1
C320 AND C321	SAME AS C308			
C322	SAME AS C304			
C323 AND C324	SAME AS C308			
C325	SAME AS C314			
C326	CAPACITOR,CERAMIC,43UUF,5 PCT,500WVDC	CC20CG430J	AU	1
C327	SAME AS C307			
C328	SAME AS C319			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C401 THRU C403	SAME AS C308			
C404	SAME AS C301			
C405	SAME AS C308			
C406	NOT USED			
C407 THRU C409	SAME AS C301			
C410 AND C411	SAME AS C308			
C412	NOT USED			
C413	SAME AS C308			
C414 AND C415	SAME AS C301			
C416 AND C417	SAME AS C308			
C418	NOT USED			
C419	SAME AS C301			
C420 AND C421	SAME AS C308			
C422 AND C423	SAME AS C301			
C424	NOT USED			
C425 AND C426	SAME AS C308			
C427 AND C428	SAME AS C301			
C429 THRU C431	SAME AS C308			
C432	SAME AS C301			
C433 THRU C435	SAME AS C308			
C436	SAME AS C301			
C437 AND C438	SAME AS C308			
C439	SAME AS C301			
C440 AND C441	SAME AS C308			
C442	SAME AS C301			
C443	CAPACITOR,PAPER,0.68UUF,10 PCT,500WVDC /POLARAD PART NO. A701920	GA-0.68	CL	1
C444	SAME AS C318			
C445	SAME AS C301			
C446	SAME AS C308			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C447	SAME AS C301			
C448 AND C449	SAME AS C308			
C450	SAME AS C301			
C451	SAME AS C308			
C452	SAME AS C301			
C453	SAME AS C308			
C454	NOT USED			
C455	SAME AS C308			
C456 AND C457	SAME AS C301			
C458	SAME AS C308			
C459	SAME AS C301			
C460	NOT USED			
C461 AND C462	SAME AS C308			
C463	SAME AS C301			
C464	SAME AS C308			
C465	SAME AS C301			
C466	NOT USED			
C467 THRU C472	SAME AS C308			
C473 THRU C475	SAME AS C301			
C476	SAME AS C308			
C477 AND C478	NOT USED			
C479	SAME AS C304			
C480 AND C481	SAME AS C308			
C482 AND C483	CAPACITOR,CERAMIC,15UUF,10 PCT,600WVDC /POLARAD PART NO. B709605	315U2M150K	Y	1
C484	SAME AS C308			
C485	SAME AS C301			
C486 AND C487	SAME AS C308			
C488	CAPACITOR,CERAMIC,0.01UF,GMV,600WVDC /POLARAD PART NO. A701874	811Z5V103P	Y	1
C489 AND C490	SAME AS C304			
C491	CAPACITOR,PLASTIC,0.1UF,10 PCT,200WVDC /POLARAD PART NO. B707206	613G10492W2	AC	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C492	SAME AS C304			
C493	NOT USED			
C494	SAME AS C304			
C495	SAME AS C308			
C501	CAPACITOR,CERAMIC,100UUF,10 PCT,600WVDC /POLARAD PART NO. B709716	831X5R101K	Y	1
C502	CAPACITOR,CERAMIC,470UUF,GMV,600WVDC /POLARAD PART NO. B709677	831Z5V471P	Y	2
C503	SAME AS C501			
C504	SAME AS C314			
C505	SAME AS C319			
C506	NOT USED			
C507	SAME AS C502			
C508	SAME AS C501			
C509	SAME AS C314			
C510	CAPACITOR,MICA,220UUF,5 PCT,500WVDC	CM15E221J	AU	1
C511	CAPACITOR,VARIABLE,CERAMIC,7-45UUF,500WVDC	CV11C450	AU	1
C512	CAPACITOR,CERAMIC,1000UUF,10 PCT,1000WVDC /POLARAD PART NO. A701560	DD-102	P	1
C513	SAME AS C501			
C514 THRU C517	SAME AS C314			
C518	SAME AS C491			
C519	CAPACITOR,MICA,150UUF,5 PCT,500WVDC	CM15E151J	AU	1
C520	SAME AS C512			
C521 AND C522	SAME AS C314			
C523	SAME AS C510			
C524	NOT USED			
C525	SAME AS C502			
C526	CAPACITOR,CERAMIC,5UUF,0.25UUF TOL,500WVDC	CC20CH050C	AU	1
C527	SAME AS C502			
C528	CAPACITOR,CERAMIC,27UUF,2 PCT,500WVDC	CC20CH270G	AU	1
C529	CAPACITOR,CERAMIC,220UUF,20 PCT,3000WVDC /POLARAD PART NO. A710240	8583KVX5V221M	Y	1
C530	NOT USED			
C531	SAME AS C502			
C532	SAME AS C528			
C533	SAME AS C526			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C534	SAME AS C502			
C535	SAME AS C510			
C536	NOT USED			
C537	SAME AS C314			
C538 THRU C541	CAPACITOR,MICA,39UUF,5 PCT,500WVDC	CM15E390J	AU	1
C542	NOT USED			
C543	SAME AS C120			
C544	SAME AS C301			
C545 THRU C547	SAME AS C502			
C548	NOT USED			
C549 THRU C553	SAME AS C502			
C554	SAME AS C301			
C555	SAME AS C529			
C656 AND C557	CAPACITOR,MICA,47UUF,5 PCT,500WVDC	CM15E470J	AU	1
C558 AND C659	SAME AS C510			
C560	NOT USED			
C561	CAPACITOR,PAPER,2UF,10 PCT,200WVDC /POLARAD PART NO. A710243	ML-2-2M	CM	1
C562	SAME AS C529			
C563	SAME AS C314			
C564	SAME AS C301			
C565 AND C566	SAME AS C491			
C601	CAPACITOR,PAPER,0.05UF,10 PCT,300WVDC	CN42AX503K	AU	1
C602	CAPACITOR,ELECTROLYTIC,3 SECT,20UF,PLUS 150 PCT,MINUS 10 PCT,25WVDC,EACH SECT /POLARAD PART NO. A710195	AFH3-01	B	1
C603	SAME AS C601			
C604	CAPACITOR,PAPER,1UF,20 PCT,200WVDC	MRF-2-1M	CM	1
C605	CAPACITOR,PAPER,0.22UF,10 PCT,100WVDC /POLARAD PART NO. A707467	91P22491S4	BN	1
C606	CAPACITOR,CERAMIC,2000UUF,GMV,1000WVDC /POLARAD PART NO. B705178	DD-202	P	1
C607	CAPACITOR,ELECTROLYTIC,100UF,50WVDC /POLARAD PART NO. B511259	TVA-1310	BN	1
C608	CAPACITOR,PAPER,0.01UF,20 PCT,200WVDC	CN22AC103M	AU	1
C609	SAME AS C604			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C610	CAPACITOR,PAPER,0.05UF,20 PCT,400WVDC	CN43AE503M	AU	1
C611	SAME AS C604			
C612	SAME AS C512			
DS101 AND DS102	LAMP,NEON,105-125VAC,BAYONET BASE /POLARAD PART NO. AK5238	NE51	Z	2
F101 THRU F104	FUSE,CARTRIDGE,5 AMP,3AG /MIL STD PART NO. MS90078-14/ /POLARAD PART NO. 518114/ F103 AND F104 ARE SPARE FUSES	F02G5R00A	AU	10
H101 AND H102	KNOB/POLARAD PART NO. 517206	70-2-2	BH	1
H103 THRU H105	KNOB/POLARAD PART NO. A707468	70-2WD-2	BH	1
H106 AND H107	KNOB/POLARAD PART NO. 517211	70-3-2	BH	1
H108 AND H109	KNOB/POLARAD PART NO. 507403	70-5-2	BH	1
J101	CONNECTOR,PLUG,FEMALE,BNC TYPE	UG-291A/U	AU	1
J102 AND J103	CONNECTOR,PLUG,MALE,BNC TYPE	UG-262A/U	AU	1
J104	SAME AS J101			
J105	CONNECTOR,RECEPTACLE,MALE,3 PINS /POLARAD PART NO. A700010	7486	AE	1
J106	CONNECTOR,PLUG,FEMALE,8 PINS /POLARAD PART NO. 509612	S-308-AB	R	1
J107	CONNECTOR,PLUG,FEMALE,6 PINS /POLARAD PART NO. 509611	S-306-AB	R	1
J108	CONNECTOR,RECEPTACLE,FEMALE,TELEPHONE TYPE	JJ-089	AU	1
J109	CONNECTOR,RECEPTACLE,FEMALE,TELEPHONE TYPE /POLARAD PART NO. A710197	S13B	CW	1
J110 THRU J114	NOT USED			
J115	SAME AS J101			
J116 THRU J124	NOT USED			
J125	CONNECTOR,PLUG,FEMALE,2 PINS /POLARAD PART NO. 509608	S-302-AB	R	1
J301 AND J302	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-625/U	AU	1
J401 THRU J407	SAME AS J301			
J501 AND J502	SAME AS J301			
J503	CONNECTOR,RECEPTACLE,MALE,8 PINS /POLARAD PART NO. A709974	16022	R	1
J504	SAME AS J501			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
J505	JACK,TEST POINT,RED/POLARAD PART NO. 541401	1108CS-RED	C	1
J601 THRU J604	SAME AS J301			
J605	CONNECTOR,RECEPTACLE,MALE,11 PINS /POLARAD PART NO. A709959	13798	R	1
K101	RELAY,TIME DELAY,SPST,115VAC /POLARAD PART NO. A005187/ USED ON SERIAL NOS. 101 THRU 1676	115ND60	E	1
K101	RELAY,THERMAL DELAY,SPST,120VAC /POLARAD PART NO. B708037/ USED ON SERIAL NOS. 11-1 AND UP	117-60-G	HL	1
K102	RELAY,ARMATURE,DPDT,115VAC /POLARAD PART NO. A702163	R22-2532	JD	1
K103	RELAY,ARMATURE,DPDT,115VAC,43MA /POLARAD PART NO. B702095	DOSX-7T	AZ	1
L101	CHOKE,RF,27H/POLARAD PART NO. B113718	ST2595	BQ	1
L102	CHOKE,RF,30H/POLARAD PART NO. B113719	ST2596	BQ	1
L103	CHOKE,FILTER,10H,300MA /POLARAD PART NO. B113721	ST2628	BQ	1
L104	CHOKE,RF,15H/POLARAD PART NO. B113720	ST2629	BQ	1
L301	COIL,RF,5UH	A21095	BE	3
L302	COIL,RF,VARIABLE	A21117	BE	1
L303	COIL,RF,VARIABLE	A21118	BE	1
L304	SAME AS L301			
L305 THRU L307	COIL,RF,0.8UH	A21094	BE	2
L308	SAME AS L303			
L309 AND L310	SAME AS L301			
L311 THRU L316	NOT USED			
L317	SAME AS L301			
L401	COIL,IF,0.156UH	A21135	BE	1
L402 THRU L404	SAME AS L301			
L405	COIL,IF,VARIABLE	A21122	BE	1
L406	NOT USED			
L407 AND L408	SAME AS L301			
L409	SAME AS L405			
L410 AND L411	SAME AS L301			
L412	NOT USED			
L413	SAME AS L405			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L414 THRU L418	SAME AS L301			
L419	SAME AS L405			
L420	SAME AS L301			
L421 AND L422	SAME AS L305			
L423 AND L424	SAME AS L301			
L425	COIL,IF,VARIABLE	A21137	BE	1
L426	COIL,IF,VARIABLE	A21136	BE	1
L427 AND L428	SAME AS L301			
L429	SAME AS L425			
L430	NOT USED			
L431	SAME AS L301			
L432 THRU L434	SAME AS L305			
L435	SAME AS L301			
L436	NOT USED			
L437	SAME AS L425			
L438 THRU L441	SAME AS L301			
L442	NOT USED			
L443 THRU L445	SAME AS L305			
L446	SAME AS L301			
L447	COIL,IF,VARIABLE	A21138	BE	1
L448	NOT USED			
L449 AND L450	SAME AS L301			
L451	COIL,IF,VARIABLE	A21139	BE	1
L452	SAME AS L301			
L453	SAME AS L305			
L454	NOT USED			
L455	COIL,IF,10UH	A21115	BE	1
L456 AND L457	COIL,IF,50UH	A21116	BE	1
L458 THRU L460	SAME AS L305			
L461	SAME AS L455			
L501	COIL,RF,VARIABLE	A21171	BE	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L502	SAME AS L301			
L503	COIL,RF,VARIABLE	A22646	BE	1
L504 THRU L506	SAME AS L301			
L507	COIL,RF,VARIABLE	A21172	BE	1
L508	COIL,RF,VARIABLE	A21173	BE	1
L509	COIL,RF,VARIABLE	A21175	BE	1
L510	COIL,RF,25UH	A21182	BE	1
L511	COIL,RF,16UH	A21183	BE	1
L512	COIL,RF,VARIABLE	A21119	BE	1
L513	SAME AS L511			
L514	COIL,RF,VARIABLE	A21174	BE	1
L515	COIL,RF,VARIABLE	A21176	BE	1
L516 AND L517	SAME AS L510			
L518	SAME AS L301			
L519 AND L520	COIL,RF,100UH	A21184	BE	1
L521	SAME AS L301			
L522 AND L523	SAME AS L305			
L524	NOT USED			
L525 THRU L530	SAME AS L305			
L531	SAME AS L510			
L532 THRU L534	SAME AS L301			
M101	METER,DC,0-1MA,2 PCT	C112521	BE	1
P101	CONNECTOR,PLUG,FEMALE,BNC TYPE,RT ANGLE /POLARAD PART NO. A706211	8525	CX	1
P102 AND P103	NOT USED			
P104	SAME AS P101			
P106 THRU P115	NOT USED			
P116	CONNECTOR,PLUG,FEMALE,9 PINS /POLARAD PART NO. B704851	MRE7-2S-G	CC	1
P117 AND P118	NOT USED			
P119	CONNECTOR,PLUG,FEMALE,18 PINS /POLARAD PART NO. 516017	SA18S	CC	1
P120	CONNECTOR,PLUG,FEMALE,ELECTRON TUBE TYPE /POLARAD PART NO. A707472	101-551-042	R	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
P121	CONNECTOR,PLUG,FEMALE,ELECTRON TUBE TYPE /POLARAD PART NO. A707476	203-5211-005	R	1
P122	NOT USED			
P124	NOT USED			
P125	CONNECTOR,PLUG,MALE,2 PINS /POLARAD PART NO. 509402	P-302-CCT-L	R	1
P201	NOT USED			
P202 AND P203	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	2
P301 AND P302	SAME AS P202			
P303	CONNECTOR,PLUG,MALE,6 PINS /POLARAD PART NO. 509408	P-306-CCT-L	R	1
P401 THRU P403	SAME AS P202			
P404 THRU P406	CONNECTOR,PLUG,MALE,BNC TYPE	UG-260/U	AU	1
P407	SAME AS P202			
P408	CONNECTOR,PLUG,MALE,8 PINS /POLARAD PART NO. 509410	P-308-CCT-L	R	1
P501	SAME AS P202			
P502	SAME AS P404			
P503	NOT USED			
P504	SAME AS P404			
P601	SAME AS P202			
P602 AND P603	SAME AS P404			
R101	RESISTOR,COMPOSITION,47 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-5	RC20GF470K	AU	1
R102	RESISTOR,COMPOSITION,270K,5 PCT,1/2W /MIL STD PART NO. MS35043-145	RC20GF274J	AU	1
R103	RESISTOR,COMPOSITION,22K,5 PCT,1/2W /MIL STD PART NO. MS35043-119	RC20GF223J	AU	1
R104	RESISTOR,COMPOSITION,1 MEGO,5 PCT,1/2W /MIL STD PART NO. MS35043-159	RC20GF105J	AU	1
R105 THRU R107	NOT USED			
R108	RESISTOR,COMPOSITION,10K,5 PCT,2W /MIL STD PART NO. MS35045-111	RC42GF103J	AU	1
R109	RESISTOR,VARIABLE,COMPOSITION,25K,10 PCT,2W /POLARAD PART NO. 517851	JA2N056S253UA	D	1
R110	SAME AS R108			
R111 AND R112	RESISTOR,WW,50K,5 PCT,10W /POLARAD PART NO. B708671	456E5035	BN	1
R113	RESISTOR,WW,30K,5 PCT,7W /POLARAD PART NO. B708939	454E3035	BN	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R114	RESISTOR,WW,15K,5 PCT,10W /POLARAD PART NO. B708662	456E1535	BN	1
R115	RESISTOR,WW,14K,5 PCT,10W /POLARAD PART NO. B708661	456E1435	BN	1
R116	SAME AS R114			
R117 AND R118	RESISTOR,WW,20K,5 PCT,10W /POLARAD PART NO. B708665	456E2035	BN	1
R119	RESISTOR,WW,37.2 OHMS,1 PCT,1/2W /POLARAD PART NO. B707005	WM2L4-37.2	CY	1
R120	SAME AS R101			
R121	RESISTOR,COMPOSITION,220K,5 PCT,1/2W /MIL STD PART NO. MS35043-27	RC20GF224J	AU	1
R122	RESISTOR,COMPOSITION,680K,5 PCT,1/2W /MIL STD PART NO. MS35043-155	RC20GF684J	AU	1
R123	RESISTOR,COMPOSITION,47K,5 PCT,1/2W MIL STD PART NO. MS35043-127	RC20GF473J	AU	1
R124	RESISTOR,COMPOSITION,8.2K,5 PCT,2W /MIL STD PART NO. MS35045-109	RC42GF822J	AU	1
R125	RESISTOR,VARIABLE,COMPOSITION,25K,10 PCT,2W /POLARAD PART NO. 517815	JA2N040S253UA	D	1
R126	RESISTOR,WW,35K,5 PCT,7W /POLARAD PART NO. B708940	454E3535	BN	1
R127	RESISTOR,COMPOSITION,470K,10 PCT,1W /MIL STD PART NO. MS35044-29	RC32GF474K	AU	1
R128	SAME AS R117			
R129	RESISTOR,WW,3K,5 PCT,5W /POLARAD PART NO. B708591	452E3025	BN	1
R130	RESISTOR,WW,5K,5 PCT,5W /POLARAD PART NO. B708594	452E5025	BN	1
R131	RESISTOR,VARIABLE,COMPOSITION,500 OHMS, 10 PCT,2W/POLARAD PART NO. 517823	JA2N032S501UA	D	1
R132	RESISTOR,COMPOSITION,1 MEGO,10 PCT,1/2W /MIL STD PART NO. MS35043-31	RC20GF105K	AU	1
R133	SAME AS R101			
R134	RESISTOR,WW,40K,5 PCT,7W /POLARAD PART NO. B708941	454E4035	BN	1
R135	SAME AS R114			
R136 AND R137	SAME AS R101			
R138	SAME AS R114			
R139	SAME AS R130			
R140	RESISTOR,COMPOSITION,470K,5 PCT,1/2W /MIL STD PART NO. MS35043-151	RC20GF474J	AU	1
R141	SAME AS R101			
R142 THRU R145	RESISTOR,COMPOSITION,47 OHMS,10 PCT,2W /MIL STD PART NO. MS35045-5	RC42GF470K	AU	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R146	RESISTOR,COMPOSITION,10 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-1	RC20GF100K	AU	2
R147	RESISTOR,COMPOSITION,110K,5 PCT,1W /MIL STD PART NO. MS35044-150	RC32GF114J	AU	1
R148	SAME AS R109			
R149	RESISTOR,COMPOSITION,91K,5 PCT,1W /MIL STD PART NO. MS35044-148	RC32GF913J	AU	1
R150	RESISTOR,WW,5K,5 PCT,25W,WITH BRKT NO. 9 /POLARAD PART NO. B703267	0212	AZ	1
R151	RESISTOR,WW,12.5 OHMS,1 PCT,1/2W /POLARAD PART NO. B707004	WM2L4-12.5	CY	1
R152	RESISTOR,COMPOSITION,68 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-6	RC20GF680K	AU	1
R153	NOT USED			
R154	RESISTOR,COMPOSITION,7.5K,5 PCT,1/2W /MIL STD PART NO. MS35043-108	RC20GF752J	AU	1
R155	SAME AS R104			
R156	RESISTOR,COMPOSITION,2.7K,10 PCT,1/2W /MIL STD PART NO. MS35043-206	RC20GF272K	AU	1
R157	SAME AS R121			
R158	RESISTOR,VARIABLE,COMPOSITION,5K,10 PCT,2W /POLARAD PART NO. 517847	JA2N056S502UA	D	1
R159	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R160	NOT USED			
R161	RESISTOR,VARIABLE,COMPOSITION,1K,10 PCT,2W /POLARAD PART NO. C708727	JA2N048S102UA	D	1
R162	RESISTOR,COMPOSITION,33K,10 PCT,2W /MIL STD PART NO. MS35045-22	RC42GF333K	AU	1
R163 THRU R166	NOT USED			
R167	RESISTOR,VARIABLE,COMPOSITION,200 OHMS, 10 PCT,2W/POLARAD PART NO. C708745	JA2N048S201UA	D	1
R168	RESISTOR,VARIABLE,COMPOSITION,50 OHMS,10 PCT, 2W/POLARAD PART NO. C708785/ USED ON SERIAL NOS. 101 THRU 1601	JA2N048S500UA	D	1
R168	SAME AS R167,USED ON SERIAL NOS. 1602 THRU 1676 AND 11-1 AND UP			
R169	RESISTOR,VARIABLE,COMPOSITION,250K,10 PCT,2W /POLARAD PART NO. 517925	JA2N056S254UA	D	1
R170	RESISTOR,COMPOSITION,22K,10 PCT,1/2W /MIL STD PART NO. MS35043-21	RC20GF223K	AU	1
R171	RESISTOR,COMPOSITION,100K,5 PCT,1/2W /MIL STD PART NO. MS35043-135	RC20GF104J	AU	1
R172	RESISTOR,WW,86.3 OHMS,1 PCT,1/2W /POLARAD PART NO. B707007	WM2L4-86.3	CY	1
R173	RESISTOR,WW,11.1 OHMS,1 PCT,1/2W /POLARAD PART NO. B707003	WM2L4-11.1	CY	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R174	RESISTOR,WW,400 OHMS,1 PCT,1/2W /POLARAD PART NO. B707006	WM2L4-400	CY	1
R175	RESISTOR,COMPOSITION,120K,5 PCT,1/2W /MIL STD PART NO. MS35043-137	RC20GF124J	AU	1
R176	RESISTOR,WW,100 OHMS,1 PCT,1/2W /POLARAD PART NO. B707002	WM2L4-100	CY	1
R177	SAME AS R127			
R301 AND R302	RESISTOR,COMPOSITION,220 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-9	RC20GF221K	AU	1
R303	RESISTOR,COMPOSITION,15K,10 PCT,1/2W /MIL STD PART NO. MS35043-20	RC20GF153K	AU	1
R304	SAME AS R170			
R305	SAME AS R301			
R306	NOT USED			
R307 AND R308	RESISTOR,COMPOSITION,4.7K,5 PCT,1/2W /MIL STD PART NO. MS35043-103	RC20GF472J	AU	1
R309	RESISTOR,COMPOSITION,33K,10 PCT,1/2W /MIL STD PART NO. MS35043-22	RC20GF333K	AU	1
R310	SAME AS R301			
R311	SAME AS R307			
R312	SAME AS R309			
R313	SAME AS R301			
R401	RESISTOR,COMPOSITION,560 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-81	RC20GF561J	AU	1
R402	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199	RC20GF181K	AU	1
R403	SAME AS R303			
R404	RESISTOR,COMPOSITION,1.8K,5 PCT,1/2W /MIL STD PART NO. MS35043-93	RC20GF182J	AU	1
R405	SAME AS R402			
R406	NOT USED			
R407	SAME AS R303			
R408	SAME AS R404			
R409	SAME AS R303			
R410	SAME AS R404			
R411	SAME AS R402			
R412	NOT USED			
R413	SAME AS R402			
R414	SAME AS R303			
R415	SAME AS R404			
R416	RESISTOR,COMPOSITION,47K,10 PCT,1/2W /MIL STD PART NO. MS35043-23	RC20GF473K	AU	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R417	RESISTOR,COMPOSITION,390 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-201	RC20GF391K	AU	1
R418	SAME AS R307			
R419	RESISTOR,COMPOSITION,1K,5 PCT,1/2W /MIL STD PART NO. MS35043-87	RC20GF102J	AU	1
R420	NOT USED			
R421	SAME AS R146			
R422	SAME AS R419			
R423	SAME AS R402			
R424	SAME AS R146			
R425	SAME AS R419			
R426	NOT USED			
R427	SAME AS R402			
R428	SAME AS R146			
R429	RESISTOR,COMPOSITION,1.2K,5 PCT,1/2W /MIL STD PART NO. MS35043-89	RC20GF122J	AU	1
R430	NOT USED			
R431	SAME AS R402			
R432	RESISTOR,COMPOSITION,22 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-3	RC20GF220K	AU	1
R433	SAME AS R429			
R434	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1W /MIL STD PART NO. MS35044-219	RC32GF181K	AU	1
R435	RESISTOR,COMPOSITION,3.9K,5 PCT,1/2W /MIL STD PART NO. MS35043-101	RC20GF392J	AU	1
R436	NOT USED			
R437	SAME AS R132			
R438	RESISTOR,COMPOSITION,470K,10 PCT,1/2W /MIL STD PART NO. MS35043-29	RC20GF474K	AU	1
R439	RESISTOR,COMPOSITION,680 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-12	RC20GF681K	AU	1
R440	RESISTOR,COMPOSITION,10K,10 PCT,1/2W /MIL STD PART NO. MS35043-19	RC20GF103K	AU	1
R441	RESISTOR,COMPOSITION,51 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-56	RC20GF510J	AU	1
R442	SAME AS R171			
R443 AND R444	NOT USED			
R445	RESISTOR,COMPOSITION,27 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-49	RC20GF270J	AU	1
R501	RESISTOR,COMPOSITION,18 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-45	RC20GF180J	AU	1
R502 AND R503	RESISTOR,COMPOSITION,270 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-73	RC20GF271J	AU	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R504	RESISTOR,COMPOSITION,1.8K,10 PCT,1/2W /MIL STD PART NO. MS35043-205	RC20GF182K	AU	1
R505	RESISTOR,COMPOSITION,110 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-64	RC20GF111J	AU	1
R506	NOT USED			
R507	SAME AS R146			
R508	RESISTOR,COMPOSITION,1.5K,5 PCT,1/2W /MIL STD PART NO. MS35043-91	RC20GF152J	AU	1
R509	RESISTOR,COMPOSITION,4.7K,10 PCT,1/2W /MIL STD PART NO. MS35043-17	RC20GF472K	AU	1
R510	SAME AS R146			
R511	SAME AS R505			
R512	RESISTOR,COMPOSITION,820 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-203	RC20GF821K	AU	1
R513	SAME AS R440			
R514	SAME AS R504			
R515	RESISTOR,COMPOSITION,15K,10 PCT,1W /MIL STD PART NO. MS35044-20	RC32GF153K	AU	1
R516	RESISTOR,COMPOSITION,18K,10 PCT,1W /MIL STD PART NO. MS35044-231	RC32GF183K	AU	1
R517	RESISTOR,COMPOSITION,27K,10 PCT,1W /MIL STD PART NO. MS35044-232	RC32GF273K	AU	1
R518	SAME AS R303			
R519	RESISTOR,COMPOSITION,2.7K,5 PCT,1/2W /MIL STD PART NO. MS35043-97	RC20GF272J	AU	1
R520	SAME AS R516			
R521	SAME AS R517			
R522	SAME AS R505			
R523	SAME AS R146			
R524	SAME AS R515			
R525	SAME AS R146			
R526 AND R527	SAME AS R508			
R528	SAME AS R146			
R529	SAME AS R505			
R530	SAME AS R170			
R531	SAME AS R146			
R532 AND R533	NOT USED			
R534	SAME AS R509			
R535	SAME AS R146			
R536	NOT USED			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R537	SAME AS R505			
R538 AND R539	SAME AS R146			
R540	SAME AS R505			
R541	SAME AS R146			
R542 THRU R544	NOT USED			
R545	RESISTOR,COMPOSITION,270K,10 PCT,1/2W /MIL STD PART NO. MS35043-218	RC20GF274K	AU	1
R546	SAME AS R440			
R547	RESISTOR,COMPOSITION,330 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-10	RC20GF331K	AU	1
R548 AND R549	RESISTOR,COMPOSITION,82 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-197	RC20GF820K	AU	1
R550	SAME AS R441			
R551	RESISTOR,VARIABLE,COMPOSITION,3K,10 PCT,1/2W /MODIFIED DR PART NO. TYPE 65	B707900	BE	1
R552	RESISTOR,VARIABLE,COMPOSITION,5 MEGO,20 PCT, 1W/MODIFIED DR PART NO. TYPE 90	B707906	BE	1
R601	SAME AS R547			
R602	SAME AS R121			
R603	RESISTOR,COMPOSITION,15K,5 PCT,1/2W /MIL STD PART NO. MS35043-115	RC20GF153J	AU	1
R604	RESISTOR,COMPOSITION,47K,5 PCT,1W /MIL STD PART NO. MS35044-141	RC32GF473J	AU	1
R605	NOT USED			
R606	RESISTOR,COMPOSITION,15K,10 PCT,2W /MIL STD PART NO. MS35045-20	RC42GF153K	AU	1
R607	SAME AS R307			
R608 AND R609	SAME AS R606			
R610	RESISTOR,COMPOSITION,2.2K,10 PCT,1W /MIL STD PART NO. MS35044-15	RC32GF222K	AU	1
R611	RESISTOR,COMPOSITION,220K,10 PCT,1/2W /MIL STD PART NO. MS35043-27	RC20GF224K	AU	1
R612	RESISTOR,COMPOSITION,27K,10 PCT,1/2W /MIL STD PART NO. MS35043-212	RC20GF273K	AU	1
R613	RESISTOR,COMPOSITION,82K,10 PCT,1/2W /MIL STD PART NO. MS35043-215	RC20GF823K	AU	1
R614	SAME AS R419			
R615 AND R616	NOT USED			
R617	RESISTOR,COMPOSITION,100 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-7	RC20GF101K	AU	1
R618	SAME AS R416			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R619	RESISTOR,COMPOSITION,220 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-71	RC20GF221J	AU	1
R620	SAME AS R146			
R621	SAME AS R140			
R622	RESISTOR,COMPOSITION,680 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-83	RC20GF681J	AU	1
R623	RESISTOR,COMPOSITION,10K,5 PCT,1/2W /MIL STD PART NO. MS35043-111	RC20GF103J	AU	1
R624 THRU R626	NOT USED			
R627	RESISTOR,COMPOSITION,1K,10 PCT,1/2W /MIL STD PART NO. MS35043-13	RC20GF102K	AU	1
R628	SAME AS R611			
R629 AND R630	RESISTOR,FILM,250 MEGO,10 PCT,1/2W	HSD-250MEG	CZ	1
R631	NOT USED			
R632	SAME AS R611			
R633	SAME AS R623			
R634	SAME AS R416			
R635	SAME AS R307			
R636	RESISTOR,COMPOSITION,3.3K,10 PCT,1W /MIL STD PART NO. MS35044-16	RC32GF332K	AU	1
S101	SWITCH,TOGGLE,DPST/POLARAD PART NO. A710196	81024KB	CP	1
S102	NOT USED			
S103	SAME AS S101			
S104	SWITCH,ROTARY,2 SECT,2 WAFERS,11 POSITIONS /MODIFIED P PART NO. 2513	A147178	BE	1
S105 AND S106	SWITCH,ROTARY,1 SECT,1 WAFER,6 POSITIONS /POLARAD PART NO. A128091	PA2002	P	1
S107	SWITCH,ROTARY,1 SECT,1 WAFER,3 POSITIONS /MODIFIED P PART NO. 2507	A147179	BE	1
S108	SWITCH,ROTARY,1 SECT,1 WAFER,6 POSITIONS /MODIFIED P PART NO. 2500	A147180	BE	1
S109	SWITCH,ROTARY,6 POLES,2 POSITIONS /POLARAD PART NO. A137213	MS20-1-6DT	AL	1
S110 THRU S114	NOT USED			
S115	SWITCH,SLIDE,DPDT,125VAC OR DC /POLARAD PART NO. A703147	SS50C9/WITH SHIELD	CL	1
TB101	TERMINAL BOARD,COMPONENT ASSY	C23635	BE	1
TB102	TERMINAL BOARD,COMPONENT ASSY	B23542	BE	1
TB103	TERMINAL BOARD/POLARAD PART NO. B704573	600-18	FD	1
TB104	TERMINAL BOARD/POLARAD PART NO. B704574	600-19	FD	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
TB105	TERMINAL BOARD,COMPONENT ASSY	A21738	BE	1
TB106	TERMINAL BOARD	A113712	BE	1
TB501	TERMINAL BOARD,COMPONENT ASSY	B21518	BE	1
TB502	TERMINAL BOARD,COMPONENT ASSY	B21519	BE	1
TB601	TERMINAL BOARD,COMPONENT ASSY	B21436	BE	1
T101	TRANSFORMER,POWER/POLARAD PART NO. B113717	ST2594	BQ	1
T102	TRANSFORMER,POWER/POLARAD PART NO. B113715	ST2592	BQ	1
T103	TRANSFORMER,POWER/POLARAD PART NO. B113716	ST2593	BQ	1
T104	TRANSFORMER,POWER,REGULATOR /POLARAD PART NO. B703615	W7394	BH	1
T301	TRANSFORMER,RF,VARIABLE	A21120	BE	1
T302	TRANSFORMER,RF,VARIABLE	A21121	BE	1
T501	TRANSFORMER,RF,VARIABLE	A21186	BE	1
T601	TRANSFORMER,AF,POWER	S-14	BW	1
V101 AND V102	ELECTRON TUBE	5R4GY	CK	10
V103	ELECTRON TUBE	807	CK	2
V104	ELECTRON TUBE	6AU6	CK	14
V105	ELECTRON TUBE	0A2	CK	4
V106	SAME AS V101			
V107	ELECTRON TUBE	6AR6	CK	2
V108	SAME AS V104			
V109	SAME AS V105			
V110	ELECTRON TUBE	6AH6	CK	6
V111 AND V112	SAME AS V101			
V113	ELECTRON TUBE	6X4	CK	2
V114 AND V115	ELECTRON TUBE	6AS7G	CK	4
V116	SAME AS V104			
V117	ELECTRON TUBE	0B2	CK	2
V301	ELECTRON TUBE	12AT7	CK	8
V302 THRU V304	ELECTRON TUBE	6AK5	CK	26
V401 THRU V408	SAME AS V302			
V409	ELECTRON TUBE	6AN5	CK	2
V410	ELECTRON TUBE	6AL5	CK	2
V411 AND V412	ELECTRON TUBE	12AU7	CK	4

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
V501 AND V502	SAME AS V104			
V503 AND V504	SAME AS V302			
V505 AND V506	SAME AS V110			
V507 AND V508	SAME AS V104			
V509	SAME AS V301			
V601	SAME AS V301			
V602	ELECTRON TUBE	6CL6	CK	2
V603	ELECTRON TUBE	6AU5GT	CK	2
V604	SAME AS V301			
V605	ELECTRON TUBE	6AS5	CK	2
V606	NOT USED			
V607	ELECTRON TUBE	6U8	CK	2
V608	ELECTRON TUBE	12AX7	CK	2
W101	CABLE ASSY,RF	C147155	BE	1
W102	CABLE ASSY,RF	C147156	BE	1
W103	CABLE ASSY,IF	C147157	BE	1
W104	CABLE ASSY,RF	C147158	BE	1
W105	CABLE ASSY,RF	C147159	BE	1
W106	CABLE ASSY,RF	C147160	BE	1
W107	CABLE ASSY,RF	C147161	BE	1
W108	CABLE ASSY,RF	C147162	BE	1
W109	CABLE ASSY,RF	C147163	BE	1
W110	CABLE ASSY,RF	C147164	BE	1
W111	CABLE ASSY,RF	C147165	BE	1
W112	CABLE ASSY,RF	C147166	BE	1
W113	CABLE ASSY,RF	C147167	BE	1
W114	CABLE ASSY,RF	C147168	BE	1
W116	CABLE ASSY	B147146	BE	1
W117	CABLE ASSY	B147147	BE	1
W118	CABLE ASSY	B147148	BE	1
W119	CABLE ASSY	B147149	BE	1
W120	CABLE ASSY	B147150	BE	1
W121	CABLE ASSY	B147151	BE	1
W122	CABLE ASSY	B147152	BE	1

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
W123	CABLE ASSY,RF	C147169	BE	1
W124	CABLE ASSY,RF	C147170	BE	1
W125	CABLE ASSY,RF	C147171	BE	1
W126	CABLE ASSY,RF	C147172	BE	1
XCR301	HOLDER,CRYSTAL/POLARAD PART NO. B701150	8000AG6	GT	1
XDS101	LAMPHOLDER,BAYONET BASE,AMBER /POLARAD PART NO. 524109	95408-933	V	1
XDS102	LAMPHOLDER,BAYONET BASE,RED /POLARAD PART NO. 524108	95408-931	V	1
XF101 THRU XF104	FUSEHOLDER,CARTRIDGE TYPE /POLARAD PART NO. 005626/ XF103 AND XF104 MOUNT SPARE FUSES	341001	AP	1
XK101	SOCKET,RELAY	TS103P01	AU	2
XV101 AND XV102	SOCKET,ELECTRON TUBE	TS101P01	AU	1
XV103	SOCKET,ELECTRON TUBE/POLARAD PART NO. A710073	33005	AS	1
XV104 AND XV105	SOCKET,ELECTRON TUBE	TS102P01	AU	1
XV106 AND XV107	SAME AS XV101			
XV108 THRU XV110	SOCKET,ELECTRON TUBE/POLARAD PART NO. 506710	78-A7P/.031-.050	F	1
XV111 AND XV112	SAME AS XV101			
XV113	SAME AS XV104			
XV114 AND XV115	SAME AS XV101			
XV116 AND XV117	SAME AS XV104			
XV301	SAME AS XK101			
XV302 THRU XV304	SOCKET,ELECTRON TUBE	TS102C01	AU	1
XV401 THRU XV410	SAME AS XV302			
XV411 AND XV412	SAME AS XK101			
XV501 THRU XV508	SAME AS XV302			
XV509	SAME AS XK101			
XV601 AND XV602	SAME AS XK101			
XV603	SAME AS XV101			
XV604	SAME AS XK101			
XV605	SAME AS XV302			

TABLE 6-2. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
XV606	NOT USED			
XV607 AND XV608	SAME AS XK101			
	SUPPLIED ACCESSORIES			
A2	ACCESSORY KIT	A144982	BE	1
A3	WRENCH KIT	A25109	BE	1
CP102	CONNECTOR,ADAPTER,3 TO 2 PINS,BLACK /POLARAD PART NO. A131966	228-BLK	FS	1
MP101	WRENCH,SPANNER	A15550	BE	1
MP102	WRENCH,SPLINE	515101	BE	1
MP103	WRENCH,SPLINE	515102	BE	1
MP104	WRENCH,SPLINE	515103	BE	1
MP105	WRENCH,SPLINE	515104	BE	1
MP106	WRENCH,ALLEN	515301	BE	1
MP107	WRENCH,ALLEN	515302	BE	1
MP108	WRENCH,ALLEN	515303	BE	1
MP109	WRENCH,ALLEN	515304	BE	1
P105	CONNECTOR,PLUG,POLARIZED,FEMALE,3 PINS, /POLARAD PART NO. A700008	7484	AE	1
P123	CONNECTOR,PLUG,MALE,3 PINS, NON-REPLACEABLE PART OF W115			
P127 AND P128	CONNECTOR,PLUG,MALE,N TYPE	UG-21D/U	AU	1
P129 AND P130	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
W115	CABLE ASSY,POWER	B145871	BE	1
W127	CABLE ASSY,VIDEO	B12553	BE	1
W128	CABLE ASSY,RF	B12551	BE	1

* Employed to adapt delay relay K101 (117-60-G) to relay socket XK101 (TS101P01) in basic unit serial nos. 101 thru 1676. This assembly is supplied only when specifically ordered.

TABLE 6-3. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RR-T TUNING UNIT			
A1104	PREAMPLIFIER ASSY, 260/140MC, USED IN TUNING UNIT SERIAL NOS. 196 THRU 223 AND 7-1 AND UP. (SEE TABLE 6-14)			
AT1101 THRU AT1103	ATTENUATOR,3DB/POLARAD PART NO. AK5530	HFA-50-3	DJ	1
A1101	OSCILLATOR ASSY,LESS V1103	C107883	BE	1
A1102	POWER SUPPLY ASSY	D138268	BE	1
A1103	RF AMPLIFIER AND PRESELECTOR ASSY	D115161	BE	1
CP1101	CONNECTOR,ADAPTER,TEE,BNC TYPE	88175	CX	1
CP1102	CONNECTOR,ADAPTER,STRAIGHT,MALE END,BNC TYPE, FEMALE END,N TYPE	UG-349A/U	AU	1
CP1103	CONNECTOR,ADAPTER,RT ANGLE,BNC TYPE	UG-306/U	AU	1
CP1104	COUPLING PROBE,INDUCTIVE, NON-REPLACEABLE PART OF W1104			
CR1101 THRU CR1104	SEMICONDUCTOR DEVICE,DIODE,SILICON	F6	CN	20
CR1105	NOT USED			
CR1106	SEMICONDUCTOR DEVICE,DIODE	1N21D	CK	5
C1101	CAPACITOR,MICA,500UUF,10 PCT,500WVDC /POLARAD PART NO. A116552	M106-150K	BL	1
C1102	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C1103	SAME AS C1101			
C1104	SAME AS C1102			
C1105	SAME AS C1101			
C1106	SAME AS C1102			
C1107	SAME AS C1101			
C1108	SAME AS C1102			
C1109	CAPACITOR,CERAMIC,1.8UUF,10 PCT,500WVDC /POLARAD PART NO. B701925	GA-1.8UUF10PCT	CL	1
C1110	CAPACITOR,MICA,1000UUF,10 PCT,500WVDC /POLARAD PART NO. A709939	M24-210K	BL	1
C1111	CAPACITOR,CERAMIC,1.5UUF,0.25UUF TOL,500WVDC	CC20CK1R5C	AU	1
C1112	CAPACITOR,CERAMIC,1000UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK61Y102Z	AU	1
C1113 AND C1114	CAPACITOR,VARIABLE,CERAMIC,1-8UUF,10 PCT, 500WVDC	PCS6-6	CH	1
C1115	SAME AS C1112			
C1116	CAPACITOR,PLASTIC,0.1UF,20 PCT,400WVDC /POLARAD PART NO. B508828	160P10404	BN	1

TABLE 6-3. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
C1117	CAPACITOR,ELECTROLYTIC,80UF,450WVDC /POLARAD PART NO. A710062	TVL-1735	BN	1
C1118	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C1119 THRU C1145	NOT USED			
C1146	SAME AS C1102			
C1147	CAPACITOR,MICA,470UUF,10 PCT,500WVDC /POLARAD PART NO. A710358	M74-147K	BL	1
DS1101 AND DS1102	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	1
FL1101	FILTER ASSY,BANDPASS,260MC	A115760	BE	1
F1101	FUSE,CARTRIDGE,2 AMP,3AG /MIL STD PART NO. MS90078-11/ /POLARAD PART NO. 518111	F02G2R00A	AU	5
H1101	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J1100	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	UG-1095B/U	AU	1
J1101	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-291A/U	AU	1
J1102	CONNECTOR,PLUG,MALE,7 PINS,WITH HOOD A7H /POLARAD PART NO. 516001	A7P	CC	1
J1103 AND J1104	NOT USED			
J1105	SAME AS J1101			
J1106 AND J1107	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-1094/U	AU	1
J1108 THRU J1111	NOT USED			
J1112	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF AT1103			
J1113 AND J1114	NOT USED			
J1115	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A147083	BE	1
J1116	JACK,TEST POINT,BLACK/POLARAD PART NO. 514201	118930-C	BV	1
J1117	JACK,TEST POINT,RED/POLARAD PART NO. 514202	118930-B	BV	1
J1118	JACK,TEST POINT,BLUE/POLARAD PART NO. 514203	118930-G	BV	1
J1119	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J1120	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J1121	NOT USED			
J1122	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF AT1102			
J1123	NOT USED			
J1124	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP1103			
J1125	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP1101			

TABLE 6-3. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
J1126	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF AT1101			
J1127	SAME AS J1101			
J1128	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP1101			
J1129	CONNECTOR,RECEPTACLE,FEMALE,N TYPE, NON-REPLACEABLE PART OF CP1102			
L1101	CHOKE,RF	A116484	BE	1
L1102	COIL,RF,1.8UH	A21248	BE	1
L1103	CHOKE,RF	A116483	BE	1
L1104	SAME AS L1102			
L1105	SAME AS L1101			
L1106	SAME AS L1102			
L1107	SAME AS L1103			
L1108	SAME AS L1102			
L1109	COIL,RF,VARIABLE	A103099	BE	1
L1110 AND L1111	NOT USED			
L1112	SAME AS L1102			
L1113	COIL,RF,VARIABLE	A106006	BE	1
L1114	NOT USED			
L1115	SAME AS L1102			
L1116 THRU L1135	NOT USED			
L1136	SAME AS L1102			
MP1101	KLYSTRON SOCKET AND COVER ASSY	BK50146	BE	1
P1101	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
P1102	CONNECTOR,PLUG,FEMALE,7 PINS,WITH HOOD A7H /POLARAD PART NO. 516005	A7S	CC	1
P1103 AND P1104	NOT USED			
P1105 THRU P1107	CONNECTOR,PLUG,MALE,BNC TYPE	UG-260B/U	AU	1
P1108	NOT USED			
P1109	SAME AS P1105			
P1110	NOT USED			
P1111	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF AT1103			
P1112 THRU P1119	NOT USED			
P1120	CONNECTOR,PLUG,POLARIZED,FEMALE,1 PIN, WITH HOOD H10/POLARAD PART NO. A530602	P1M1SLS	CC	1

TABLE 6-3. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
P1121	NOT USED			
P1122	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88B/U	AU	1
P1123	NOT USED			
P1124	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF AT1102			
P1125	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP1103			
P1126	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP1101			
P1127	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF AT1101			
P1128	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP1102			
P1129	CONNECTOR,PLUG,MALE,N TYPE, NON-REPLACEABLE PART OF XCR1106			
R1101 AND R1102	RESISTOR,VARIABLE,COMPOSITION,10K,10 PCT,2W /POLARAD PART NO. 517849	JA2N056S103UA	D	1
R1103 AND R1104	RESISTOR,COMPOSITION,100 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-63	RC20GF101J	AU	1
R1105	RESISTOR,COMPOSITION,1 MEGO,10 PCT,1/2W /MIL STD PART NO. MS35043-31	RC20GF105K	AU	1
R1106	RESISTOR,COMPOSITION,15K,10 PCT,1/2W /MIL STD PART NO. MS35043-20	RC20GF153K	AU	1
R1107	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R1108	RESISTOR,VARIABLE,COMPOSITION,100K,10 PCT,2W /POLARAD PART NO. 517923	JA2N056S104UA	D	1
R1109	RESISTOR,COMPOSITION,270K,10 PCT,2W /MIL STD PART NO. MS35045-218	RC42GF274K	AU	1
R1110	RESISTOR,VARIABLE,WW,100K,5 PCT,10W	BK5413	BE	1
R1111	RESISTOR,VARIABLE,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R1112 AND R1113	RESISTOR,COMPOSITION,56K,10 PCT,2W /MIL STD PART NO. MS35045-214	RC42GF563K	AU	1
R1114	SAME AS R1108			
R1115	RESISTOR,COMPOSITION,91 OHMS,1 PCT,1/2W /POLARAD PART NO. B707001	WM2L4-91	CY	1
R1116 THRU R1119	RESISTOR,COMPOSITION,220K,5 PCT,1W /MIL STD PART NO. MS35044-157	RC32GF224J	AU	1
R1120	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R1121 THRU R1129	NOT USED			
R1130 AND R1131	RESISTOR,VARIABLE,WW,2K,10 PCT,10W, WITH MTG BRKTS	1026	AZ	1
TB1101	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1

TABLE 6-3. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
T1101	NOT USED			
TB1102	TERMINAL BOARD,COMPONENT ASSY	C115479	BE	1
T1103 AND T1104	NOT USED			
T1102	TRANSFORMER,POWER	PCC-55	DY	1
T1105	TRANSFORMER,POWER/POLARAD PART NO. B140494/ USED ON SERIAL NOS. 196 THRU 217	ST3810	BQ	1
V1101 AND V1102	ELECTRON TUBE	6299	CK	4
V1103	ELECTRON TUBE,KLYSTRON,700-3000MC	ZV1010/7505	BE	1
V1104	ELECTRON TUBE	6X4	CK	2
V1105 AND V1106	NOT USED			
V1107 AND V1108	ELECTRON TUBE	0B2	CK	4
W1101	CABLE ASSY,RF	A112494	BE	1
W1102	CABLE ASSY,RF	A115765	BE	1
W1103	CABLE ASSY,RF	A119808	BE	1
W1104	CABLE AND PROBE ASSY	B112250	BE	1
XCR1101 THRU XCR1105	NOT USED			
XCR1106	HOLDER,CRYSTAL,MALE,N TYPE /MODIFIED AU PART NO. UG-119A/UP	A707444	BE	1
XF1101	FUSEHOLDER,CARTRIDGE TYPE /POLARAD PART NO. 545300	340067	AP	1
XV1101 THRU XV1103	NOT USED			
XV1104	SOCKET,ELECTRON TUBE	TS102P01	AU	1
XV1105 AND XV1106	NOT USED			
XV1107 AND XV1108	SOCKET,ELECTRON TUBE	TS102P01	AU	1
Z1101	MIXER ASSY	B116243	BE	1

TABLE 6-4. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RL-T TUNING UNIT			
A201	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 14-1 AND UP. (SEE TABLE 6-11)			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 102 THRU 356. (SEE TABLE 6-12)			
A203	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 357 THRU 385. (SEE TABLE 6-13)			
A701	OSCILLATOR ASSY,LESS V701	C20566	BE	1
A702	MIXER AND CABLE ASSY	C138451	BE	1
CP701	CONNECTOR,ADAPTER,TEE,BNC TYPE	UG-274/U	AU	1
CP702	COUPLING PROBE,LOOP, NON-REPLACEABLE PART OF A701			
CR701	SEMICONDUCTOR DEVICE,DIODE,SILICON	1N23C	CK	5
C701	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C702	CAPACITOR,MICA,1000UUF,10 PCT,300WVDC	CB11ND102K	AU	1
DS701 AND DS702	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
FL701	FILTER ASSY,LOW-PASS	A27611	BE	1
H701	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J701	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	UG-1095B/U	AU	1
J702	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	B147200	BE	1
J703	JACK,TEST POINT,RED/POLARAD PART NO. 541401	1108CS-RED	C	1
J704	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	1108CS-BLACK	C	1
J705	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J706	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF XCR701			
J707 AND J708	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF FL701			
J709 AND J710	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP701			
J711	CONNECTOR,RECEPTACLE,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP701			
MP701	KLYSTRON SOCKET AND COVER ASSY	BK50146	BE	1
P201	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88C/U	AU	1
P701	NOT USED			
P702	CONNECTOR,PLUG,MALE,N TYPE	UG-536A/U	AU	1
P703 THRU P705	NOT USED			
P706 AND P707	CONNECTOR,PLUG,MALE/POLARAD PART NO. A702294	863-3	FR	1
P708 THRU P710	SAME AS P201			
P711	CONNECTOR,PLUG,FEMALE,BNC TYPE	UG-89/U	AU	1

TABLE 6-4. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R701	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R702	RESISTOR,COMPOSITION,15K,10 PCT,1/2W /MIL STD PART NO. MS35043-20	RC20GF153K	AU	1
R703	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R704	RESISTOR,VARIABLE,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R705	RESISTOR,VARIABLE,WW,100K,5 PCT,10W	BK5413	BE	1
R706 AND R707	NOT USED			
R708	RESISTOR,COMPOSITION,150K,10 PCT,2W /MIL STD PART NO. MS35045-26	RC42GF154K	AU	1
R709	RESISTOR,VARIABLE,COMPOSITION,100K,10 PCT,2W /POLARAD PART NO. 517923	JA2N056S104UA	D	1
R710 THRU R713	RESISTOR,COMPOSITION,220K,5 PCT,2W /MIL STD PART NO. MS35045-143	RC42GF224J	AU	1
R714	RESISTOR,COMPOSITION,91 OHMS,1 PCT,1/2W /POLARAD PART NO. B707001	WM2L4-91	CY	1
R715 AND R716	RESISTOR,COMPOSITION,56K,10 PCT,2W /MIL STD PART NO. MS35045-214	RC42GF563K	AU	1
R717	SAME AS R709			
TB701	TERMINAL BOARD,COMPONENT ASSY	C23896	BE	1
TB702	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
TB703	TERMINAL BOARD,COMPONENT ASSY	B147077	BE	1
V701	ELECTRON TUBE,KLYSTRON,700-3000MC	ZV1010/7505	BE	1
V702	ELECTRON TUBE	6X4	CK	2
W701	CABLE ASSY,RF	C147360	BE	1
W702	CABLE ASSY,RF	A139272	BE	1
W703	CABLE ASSY,RF	A138455	BE	1
W704	CABLE AND PROBE ASSY, NON-REPLACEABLE PART OF A702			
W705	CABLE ASSY,RF	A139274	BE	1
XCR701	HOLDER,CRYSTAL/POLARAD PART NO. A700378	1560	GL	1
XV701	NOT USED			
XV702	SOCKET,ELECTRON TUBE	TS102P01	AU	1
Z701	PRESELECTOR ASSY	C21489	BE	1
Z702	IMPEDENCE STUB ASSY	B138454	BE	1

TABLE 6-5. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RS-T TUNING UNIT			
A201	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 476 THRU 484, 486 THRU 489 AND 15-1 AND UP. (SEE TABLE 6-11)			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 91 THRU 415. (SEE TABLE 6-12)			
A203	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 416 THRU 475, 485 AND 490. (SEE TABLE 6-13)			
A801	OSCILLATOR ASSY,LESS V801	C21672	BE	1
A802	MIXER ASSY	A132239	BE	1
CP801	CONNECTOR,ADAPTER,TEE,BNC TYPE	UG-274A/U	AU	1
CP802	COUPLING PROBE,RESISTIVE, NON-REPLACEABLE PART OF W804			
CP803	COUPLING PROBE,CAPACITIVE, NON-REPLACEABLE PART OF W804			
CR801	SEMICONDUCTOR DEVICE,DIODE,SILICON	1N23C	CK	5
C801	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C802	CAPACITOR,MICA,1000UUF,10 PCT,300WVDC	CB11ND102K	AU	1
DS801 AND DS802	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
H801	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J801	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	UG-1095B/U	AU	1
J802	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	A125825	BE	1
J803	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J804	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J805	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J806	CONNECTOR,RECEPTACLE,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP801			
J807 AND J808	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP801			
P201	CONNECTOR,PLUG,MALE,BNC TYPE,RT ANGLE	UG-913/U	AU	1
	KLYSTRON SOCKET AND COVER ASSY			
P801	NOT USED			
P802	CONNECTOR,PLUG,MALE,N TYPE	UG-536A/U	AU	1
P803 THRU P805	NOT USED			
P806	CONNECTOR,PLUG,FEMALE,BNC TYPE	UG-89/U	AU	1
P807 AND P808	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
R801	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R802	RESISTOR,COMPOSITION,15K,10 PCT,1/2W /MIL STD PART NO. MS35043-20	RC20GF153K	AU	1

TABLE 6-5. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R803	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R804	RESISTOR,VARIABLE,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R805	RESISTOR,VARIABLE,WW,100K,5 PCT,10W	BK5413	BE	1
R806 AND R807	NOT USED			
R808	RESISTOR,COMPOSITION,47K,10 PCT,2W /MIL STD PART NO. MS35045-23	RC42GF473K	AU	1
R809	RESISTOR,VARIABLE,COMPOSITION,100K,10 PCT,2W /POLARAD PART NO. 517923	JA2N056S104UA	D	1
R810 THRU R813	RESISTOR,COMPOSITION,220K,5 PCT,1W /MIL STD PART NO. MS35044-157	RC32GF224J	AU	1
R814	RESISTOR,COMPOSITION,91 OHMS,1 PCT,1/2W /POLARAD PART NO. B707001	WM2L4-91	CY	1
R815 AND R816	NOT USED			
R817	SAME AS R809			
R818	RESISTOR,COMPOSITION,150K,10 PCT,2W /MIL STD PART NO. MS35045-26	RC42GF154K	AU	1
R819	RESISTOR,FILM,MICROWAVE,50 OHMS,10 PCT,1/2W /POLARAD PART NO. A544106/ NON-REPLACEABLE PART OF W804			
TB801	TERMINAL BOARD,COMPONENT ASSY	C23897	BE	1
TB802	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
V801	ELECTRON TUBE,KLYSTRON,1500-6000MC	ZV1009/7049	BE	1
V802	ELECTRON TUBE	6X4	CK	2
W801	CABLE ASSY,RF	C147360	BE	1
W802	CABLE ASSY,RF	A130040	BE	1
W803	CABLE AND MIXER ASSY	A132260	BE	1
W804	CABLE AND PROBE ASSY	B132243	BE	1
XCR801	HOLDER,CRYSTAL,NON-REPLACEABLE PART OF W803			
XV801	NOT USED			
XV802	SOCKET,ELECTRON TUBE	TS102P01	AU	1
Z801	PRESELECTOR AND MIXER ASSY	C128799	BE	1
Z802	IMPEDENCE STUB ASSY	A137622	BE	1

TABLE 6-6. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RM-T TUNING UNIT			
A201	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 376 THRU 385 AND 15-1 AND UP. (SEE TABLE 6-11)			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 92 THRU 335. (SEE TABLE 6-12)			
A203	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 336 THRU 375 AND 14-1 THRU 14-15. (SEE TABLE 6-13)			
A901	OSCILLATOR ASSY,LESS V901	C21615	BE	1
A902	MIXER ASSY	A127973	BE	1
B901	BLOWER ASSY,CENTRIFUGAL,115VAC,50-60CPS	C20756	BE	1
B901A	MOTOR,BLOWER,115VAC,50-60CPS /POLARAD PART NO. C21189/PART OF B901	50745-76X	EV	1
B901B	FILTER,AIR CONDITIONING,PART OF B901	B10517	BE	1
CP901	CONNECTOR,ADAPTER,TEE,BNC TYPE	UG-274A/U	AU	1
CP902	COUPLING PROBE,CAPACITIVE, NON-REPLACEABLE PART OF W904			
CP903	COUPLING PROBE,RESISTIVE, NON-REPLACEABLE PART OF W904			
CP904	COUPLING PROBE,LOOP, NON-REPLACEABLE PART OF W901			
CR901	SEMICONDUCTOR DEVICE,DIODE,SILICON	1N23D	CK	5
C901	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C902	CAPACITOR,MICA,1000UUF,10 PCT,300WVDC	CB11ND102K	AU	1
DS901 AND DS902	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
H901	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J901	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	UG-22D/U	AU	1
J902	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF XCR901			
J903	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J904	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J905	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J906 AND J907	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP901			
MP901	KLYSTRON SOCKET AND COVER ASSY	BK50148	BE	1
P201	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
P901	NOT USED			
P902	CONNECTOR,RECEPTACLE,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP901			
P903 THRU P905	NOT USED			
P906 AND P907	SAME AS P201			

TABLE 6-6. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R901	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R902	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R903	RESISTOR,COMPOSITION,560K,10 PCT,1/2W /MIL STD PART NO. MS35043-220	RC20GF564K	AU	1
R904	RESISTOR,VARIABLE,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R905	RESISTOR,VARIABLE,WW,100K,5 PCT,10W	BK5413	BE	1
R906 AND R907	NOT USED			
R908	SAME AS R904			
R909 THRU R912	RESISTOR,COMPOSITION,390K,5 PCT,2W /MIL STD PART NO. MS35045-149	RC42GF394J	AU	1
R913	RESISTOR,WW,72.5 OHMS,1 PCT,1/2W /POLARAD PART NO. B707000	WM2L4-72.5	CY	1
R914 AND R915	RESISTOR,COMPOSITION,100K,5 PCT,2W /MIL STD PART NO. MS35045-135	RC42GF104J	AU	1
R916	RESISTOR,VARIABLE,COMPOSITION,1 MEGO, 20 PCT,2W/POLARAD PART NO. 517929	JA2N056S105MA	D	1
R917	RESISTOR,FILM,MICROWAVE,50 OHMS,10 PCT,1/2W /POLARAD PART NO. A544106/ NON-REPLACEABLE PART OF W904			
TB901	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
TB902	TERMINAL BOARD,COMPONENT ASSY	C23898	BE	1
TB903	TERMINAL BOARD,COMPONENT ASSY	B147079	BE	1
V901	ELECTRON TUBE,KLYSTRON,3000-11000MC	5721	CK	1
V902	ELECTRON TUBE	6X4	CK	2
W901	CABLE ASSY,RF	B130594	BE	1
W902	CABLE ASSY,RF	C503391	BE	1
W903	NOT USED			
W904	CABLE AND PROBE ASSY	B130598	BE	1
XCR901	HOLDER,CRYSTAL/POLARAD PART NO. A700378	1560	GL	1
XV901	NOT USED			
XV902	SOCKET,ELECTRON TUBE	TS102P01	AU	1
Z901	PRESELECTOR AND MIXER ASSY	C124360	BE	1
Z902	IMPEDENCE STUB ASSY	A137622	BE	1

TABLE 6-7. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RX-T TUNING UNIT			
A201	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 371 THRU 400 AND 13-1 AND UP. (SEE TABLE 6-11)			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 105 THRU 370. (SEE TABLE 6-12)			
A1001	OSCILLATOR ASSY,LESS V1001	C21800	BE	1
A1002	MIXER ASSY	C137629	BE	1
B1001	BLOWER ASSY,CENTRIFUGAL,115VAC,50-60CPS	C20756	BE	1
B1001A	MOTOR,BLOWER,115VAC,50-60CPS /POLARAD PART NO. C21189/PART OF B1001	50745-76X	EV	1
B1001B	FILTER,AIR CONDITIONING,PART OF B1001	B10517	BE	1
CP1001	CONNECTOR,ADAPTER,TEE,BNC TYPE	UG-274/U	AU	1
CP1002	CONNECTOR,ADAPTER,STRAIGHT,BNC TYPE	UG-491A/U	AU	1
CP1003	COUPLING PROBE,CAPACITIVE, NON-REPLACEABLE PART OF W1003			
CP1004	COUPLING PROBE,RESISTIVE NON-REPLACEABLE PART OF W1003			
CR1001	SEMICONDUCTOR DEVICE,DIODE	1N2510	CK	5
C1001	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C1002	CAPACITOR,MICA,1000UUF,10 PCT,300WVDC	CB11ND102K	AU	1
DS1001 AND DS1002	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
H1001	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J1001	CONNECTOR,RECEPTACLE,FEMALE,N TYPE	UG-22B/U	AU	1
J1002	CONNECTOR,RECEPTACLE,FEMALE,1 PIN	B138236	BE	1
J1003	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J1004	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J1005	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J1006	CONNECTOR,RECEPTACLE,FEMALE,RT ANGLE	A137626	BE	1
J1007 AND J1008	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF CP1001			
J1009	CONNECTOR,RECEPTACLE,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP1001			
MP1001	KLYSTRON SOCKET AND COVER ASSY	BK50148	BE	1
P201	CONNECTOR,PLUG,MALE,BNC TYPE,RT ANGLE	UG-913/U	AU	1
P1001	NOT USED			
P1002	CONNECTOR,PLUG,MALE,N TYPE	UG-21D/U	AU	1
P1003 THRU P1005	NOT USED			
P1006 AND P1007	CONNECTOR,PLUG,MALE,BNC TYPE, NON-REPLACEABLE PART OF CP1002			

TABLE 6-7. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
P1008	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
P1009	CONNECTOR,PLUG,FEMALE,BNC TYPE	UG-89B/U	AU	1
R1001	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R1002	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R1003	RESISTOR,COMPOSITION,560K,10 PCT,1/2W /MIL STD PART NO. MS35043-220	RC20GF564K	AU	1
R1004	RESISTOR,FILM,MICROWAVE,50 OHMS,10 PCT,1/2W /POLARAD PART NO. 544106/ NON-REPLACEABLE PART OF W1003			
R1005	RESISTOR,VARIABLE,COMPOSITION,250K,10 PCT,2W /POLARAD PART NO. 517925	JA2N056S254UA	D	1
R1006	NOT USED			
R1007	SAME AS R1005			
R1008	RESISTOR,VARIABLE,WW,100K,1 PCT,12W, TAP A,80K,TAP B,60K,TAP C,40K,TAP D,20K /POLARAD PART NO. 005033	RVLL-3-12-S73	DL	1
R1009 AND R1010	SAME AS R1005			
R1011 AND R1012	NOT USED			
R1013 THRU R1016	RESISTOR,COMPOSITION,390K,5 PCT,2W /MIL STD PART NO. MS35045-149	RC42GF394J	AU	1
R1017	RESISTOR,WW,72.5 OHMS,1 PCT,1/2W /POLARAD PART NO. B707000	WM2L4-72.5	CY	1
R1018	SAME AS R1005			
R1019	RESISTOR,COMPOSITION,150K,10 PCT,2W /MIL STD PART NO. MS35045-26	RC42GF154K	AU	1
R1020	SAME AS R1005			
S1001	SWITCH,SENSITIVE,DPDT /POLARAD PART NO. B706800	D8-4	GB	1
TB1001	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
TB1002	TERMINAL BOARD,COMPONENT ASSY	C23899	BE	1
V1001	ELECTRON TUBE,KLYSTRON,3000-11000MC	5721	CK	1
V1002	ELECTRON TUBE	6X4	CK	2
W1001	CABLE ASSY,RF	A138457	BE	1
W1002	CABLE ASSY,IF	A138456	BE	1
W1003	CABLE AND PROBE ASSY	B138257	BE	1
XV1001	NOT USED			
XV1002	SOCKET,ELECTRON TUBE	TS102P01	AU	1
Z1001	PRESELECTOR ASSY	C138243	BE	1
Z1002	IMPEDENCE STUB ASSY	A137622	BE	1

TABLE 6-8. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RKS-T TUNING UNIT			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 116 THRU 205 AND 7-1 AND UP. (SEE TABLE 6-12)			
A901	OSCILLATOR ASSY,LESS V901	C21615	BE	1
A902	MIXER ASSY	B105156	BE	1
B901	BLOWER ASSY,CENTRIFUGAL,115VAC,50-60CPS	C20756	BE	1
B901A	MOTOR,BLOWER,115VAC,50-60CPS /POLARAD PART NO. C21189/PART OF B901	50745-76X	EV	1
B901B	FILTER,AIR CONDITIONING,PART OF B901	B10517	BE	1
CP903	COUPLING PROBE,LOOP NON-REPLACEABLE PART OF W904			
CR901	SEMICONDUCTOR DEVICE,DIODE	1N286	CK	5
C901	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C1101 THRU C1110	NOT USED			
C1111	CAPACITOR,CERAMIC,1.5UUF,0.25UUF TOL,500WVDC	CC20CK1R5C	AU	1
C1112	CAPACITOR,CERAMIC,1000UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK61Y102Z	AU	1
C1113 AND C1114	CAPACITOR,VARIABLE,CERAMIC,1-8UUF, 10 PCT,500WVDC	PCS6-6	CH	1
C1115	SAME AS C1112			
C1116 THRU C1145	NOT USED			
C1146	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
DS901 AND DS902	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
FL901	FILTER ASSY,WAVEGUIDE	B102825	BE	1
FL1101	FILTER ASSY,BANDPASS,260MC	A115760	BE	1
H901	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J901 AND J902	NOT USED			
J903	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J904	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J905	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J906	CONNECTOR,RECEPTACLE,FEMALE,TNC TYPE, NON-REPLACEABLE PART OF A902			
J1101 THRU J1105	NOT USED			
J1106 AND J1107	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-1094/U	AU	1

TABLE 6-8. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L1101 THRU L1111	NOT USED			
L1112	COIL,RF,1.8UH	A21248	BE	1
L1113	COIL,RF,VARIABLE	A106006	BE	1
L1114	COIL,RF,VARIABLE	A106007	BE	1
L1115	SAME AS L1112			
MP901	KLYSTRON SOCKET AND COVER ASSY	BK50148	BE	1
MP902	CAP AND CHAIN ASSY	A146202	BE	1
P201 THRU P205	NOT USED			
P206	CONNECTOR,PLUG,MALE,BNC TYPE,RT ANGLE /POLARAD PART NO. AK5526	8575	CX	1
P901 THRU P905	NOT USED			
P906	CONNECTOR,PLUG,MALE,TNC TYPE /POLARAD PART NO. B706495	6000	JR	1
P1101 THRU P1105	NOT USED			
P1106	CONNECTOR,PLUG,MALE,BNC TYPE	UG-260/U	AU	1
P1107	SAME AS P206			
R901	RESISTOR,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R902	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R903	RESISTOR,COMPOSITION,560K,10 PCT,1/2W /MIL STD PART NO. MS35043-220	RC20GF564K	AU	1
R904	RESISTOR,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R905	RESISTOR,VARIABLE,WW,100K,5 PCT,12W	BK5413	BE	1
R906 AND R907	NOT USED			
R908	SAME AS R904			
R909 THRU R912	RESISTOR,COMPOSITION,390K,5 PCT,2W /MIL STD PART NO. MS35045-149	RC42GF394J	AU	1
R913	RESISTOR,COMPOSITION,72.5 OHMS,1 PCT,1/2W /POLARAD PART NO. B707000	WM2L4-72.5	CY	1
R914 AND R915	RESISTOR,COMPOSITION,100K,5 PCT,2W /MIL STD PART NO. MS35045-135	RC42GF104J	AU	1
R916	RESISTOR,COMPOSITION,1 MEGO,20 PCT,2W /POLARAD PART NO. 517929	JA2N056S105MA	D	1
TB901	TERMINAL BOARD,COMPONENT ASSY	C23898	BE	1
TB902	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
V901	ELECTRON TUBE,KLYSTRON,3000-11000MC	5721	CK	1
V902	ELECTRON TUBE	6X4	CK	2

TABLE 6-8. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
W901	NOT USED			
W902	CABLE ASSY,IF	C503345		
W903	CABLE AND CRYSTAL HOLDER ASSY	B105180	BE	1
W904	CABLE AND PROBE ASSY	B105181	BE	1
XCR901	HOLDER,CRYSTAL,NON-REPLACEABLE PART OF W903			
XV901	NOT USED			
XV902	SOCKET,ELECTRON TUBE	TS102P01	AU	1
	SUPPLIED ACCESSORIES			
CP901	TRANSITION,WAVEGUIDE	A124069	BE	1
CP902	TRANSITION,WAVEGUIDE	A124068	BE	1

TABLE 6-9. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RKU-T TUNING UNIT			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 156 THRU 195 AND 6-1 AND UP. (SEE TABLE 6-12)			
A1001	OSCILLATOR ASSY,LESS V1001	C21800	BE	1
A1002	MIXER,CABLE AND PROBE ASSY	C28657	BE	1
B1001	BLOWER ASSY,CENTRIFUGAL,115VAC,50-60CPS	C20756	BE	1
B1001A	MOTOR,BLOWER,115VAC,50-60CPS /POLARAD PART NO. C21189/PART OF B1001	50745-76X	EV	1
B1001B	FILTER,AIR CONDITIONING,PART OF B1001	B10517	BE	1
CP1003	COUPLING PROBE,LOOP, NON-REPLACEABLE PART OF A1002			
CR1001	SEMICONDUCTOR DEVICE,DIODE	1N286	CK	5
C1001	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
C1002 THRU C1010	NOT USED			
C1111	CAPACITOR,CERAMIC,1.5UUF,0.25UUF TOL,500WVDC	CC20CK1R5C	AU	1
C1112	CAPACITOR,CERAMIC,1000UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK61Y102Z	AU	1
C1113 AND C1114	CAPACITOR,VARIABLE,CERAMIC,1-8UUF, 10 PCT,500WVDC	PCS6-6	CH	1
C1115	SAME AS C1112			
C1116 THRU C1145	NOT USED			
C1146	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
DS1001 AND DS1002	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	1
FL1001	FILTER ASSY,WAVEGUIDE	B28656	BE	1
FL1101	FILTER ASSY,BANDPASS,260MC	A115760	BE	1
H1001	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
J1001 AND J1002	NOT USED			
J1003	JACK,TEST POINT,RED/POLARAD PART NO. 541401	1108CS-RED	C	1
J1004	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	1108CS-BLACK	C	1
J1005	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
J1101 THRU J1105	NOT USED			
J1106 AND J1107	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-1094/U	AU	1
L1101 THRU L1111	NOT USED			

TABLE 6-9. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L1112	COIL,RF,1.8UH	A21248	BE	1
L1113	COIL,RF,VARIABLE	A106006	BE	1
L1114	COIL,RF,VARIABLE	A106007	BE	1
L1115	SAME AS L1112			
MP1001	KLYSTRON SOCKET AND COVER ASSY	BK50148	BE	1
MP1002	CAP AND CHAIN ASSY	A146202	BE	1
P201 THRU P205	NOT USED			
P206	CONNECTOR,PLUG,MALE,BNC TYPE,RT ANGLE /POLARAD PART NO. AK5526	8575	CX	1
P1101 THRU P1105	NOT USED			
P1106	CONNECTOR,PLUG,MALE,BNC TYPE	UG-260/U	AU	1
P1107	SAME AS P206			
R1001	RESISTOR,VARIABLE,COMPOSITION,2.5K,10 PCT,2W /POLARAD PART NO. 517845	JA2N056S252UA	D	1
R1002	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R1003	RESISTOR,COMPOSITION,560K,10 PCT,1/2W /MIL STD PART NO. MS35043-220	RC20GF564K	AU	1
R1004	NOT USED			
R1005	RESISTOR,VARIABLE,COMPOSITION,250K,10 PCT,2W /POLARAD PART NO. 517925	JA2N056S254UA	D	1
R1006	NOT USED			
R1007	SAME AS R1005			
R1008	RESISTOR,VARIABLE,WW,100K,1 PCT,12W, TAP A,80K,TAP B,60K,TAP C,40K,TAP D,20K /POLARAD PART NO. 005033	RVLL-3-12-S73	DL	1
R1009 AND R1010	SAME AS R1005			
R1011 AND R1012	NOT USED			
R1013 THRU R1016	RESISTOR,COMPOSITION,390K,5 PCT,2W /MIL STD PART NO. MS35045-149	RC42GF394J	AU	1
R1017	RESISTOR,WW,72.5 OHMS,1 PCT,1/2W /POLARAD PART NO. B707000	WM2L4-72.5	CY	1
R1018	SAME AS R1005			
R1019	RESISTOR,COMPOSITION,150K,10 PCT,2W /MIL STD PART NO. MS35045-26	RC42GF154K	AU	1
R1020	SAME AS R1005			
S1001	SWITCH,SENSITIVE,DPDT /POLARAD PART NO. B706800	D8-4	GB	1
TB1001	TERMINAL BOARD,COMPONENT ASSY	C23899	BE	1
TB1002	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1

TABLE 6-9. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
TB1003	TERMINAL BOARD,COMPONENT ASSY	B147080	BE	1
V1001	ELECTRON TUBE,KLYSTRON,3000-11000MC	5721	CK	1
V1002	ELECTRON TUBE	6X4	CK	2
W1001	NOT USED			
W1002	CABLE ASSY,IF	C503345	BE	1
W1003	CABLE AND CRYSTAL HOLDER ASSY	B105180	BE	1
W1004	CABLE AND PROBE ASSY, NON-REPLACEABLE PART OF A1002			
XCR1001	HOLDER,CRYSTAL,NON-REPLACEABLE PART OF W1003			
XV1001	NOT USED			
XV1002	SOCKET,ELECTRON TUBE	TS102P01	AU	1
	SUPPLIED ACCESSORIES			
CP1001	TRANSITION,WAVEGUIDE	B15931	BE	1
CP1002	TRANSITION,WAVEGUIDE	B15930	BE	1

TABLE 6-10. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	MODEL RQ-T TUNING UNIT			
A202	PREAMPLIFIER ASSY, 260/140MC USED IN TUNING UNIT SERIAL NOS. 101 THRU 145 AND 4-1 AND UP. (SEE TABLE 6-12)			
AT1201	ATTENUATOR ASSY,WAVEGUIDE	B122109	BE	1
A1201	OSCILLATOR ASSY,LESS V1201	B115755	BE	1
A1202	CRYSTAL MIXER ASSY,26500-46700MC	C124936	BE	1
A1203	CRYSTAL MIXER ASSY,20300-26500MC	C124960	BE	1
A1204	WAVEGUIDE ASSY,TEE	B122100	BE	1
A1205	COMPONENT ASSY	B118247	BE	1
B1201	BLOWER ASSY,CENTRIFUGAL,115VAC,50-60CPS	C140486	BE	1
B1201A	MOTOR,BLOWER,115VAC,50-60CPS /POLARAD PART NO. B138263/PART OF B1201	8438	BK	1
B1201B	BRACKET,BLOWER,PART OF B1201	C139432	BE	1
CR1201	SEMICONDUCTOR DEVICE,DIODE	1N53	CK	5
CR1202	SEMICONDUCTOR DEVICE,DIODE	1N26	CK	5
C1101 THRU C1110	NOT USED			
C1111	CAPACITOR,CERAMIC,1.5UUF,0.25UUF TOL,500WVDC	CC20CK1R5C	AU	1
C1112	CAPACITOR,CERAMIC,1000UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK61Y102Z	AU	1
C1113 AND C1114	CAPACITOR,VARIABLE,CERAMIC,1-8UUF,10 PCT, 500WVDC	PCS6-6	CH	1
C1115	SAME AS C1112			
C1116 THRU C1145	NOT USED			
C1146	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C1201	CAPACITOR,PAPER,0.5UF,PLUS 20 PCT, MINUS 10 PCT,1000WVDC	CP61B1EG504V	AU	1
DS1201 AND DS1202	LAMP,INCANDESCENT,6-8V,BAYONET BASE /POLARAD PART NO. 005237	47	CK	2
FL1101	FILTER ASSY,BANDPASS,260MC	A115760	BE	1
H1201	KNOB/POLARAD PART NO. 507302	175-6-2	BH	1
H1202	KNOB/POLARAD PART NO. 507403	70-5-2	BH	1
J1101 THRU J1105	NOT USED			
J1106 AND J1107	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-1094/U	AU	1
J1201 AND J1202	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE, NON-REPLACEABLE PART OF K1201			

TABLE 6-10. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
J1203	JACK,TEST POINT,RED/POLARAD PART NO. 541401	110BCS-RED	C	1
J1204	JACK,TEST POINT,BLACK/POLARAD PART NO. 541403	110BCS-BLACK	C	1
J1205	SAME AS J1201			
J1206 AND J1207	NOT USED			
J1208	CONNECTOR,RECEPTACLE,MALE,18 PINS,WITH BRKT	A21950	BE	1
K1201	RELAY,COAXIAL,SPDT/POLARAD PART NO. A116079	CR24B	DW	1
L1101 THRU L1111	NOT USED			
L1112	COIL,RF,1.8UH	A21248	BE	1
L1113	COIL,RF,VARIABLE	A106006	BE	1
L1114	COIL,RF,VARIABLE	A106007	BE	1
L1115	SAME AS L1112			
MP1201	SHIELD AND LEAD ASSY	B139686	BE	1
MP1202	SHIELD AND LEAD ASSY	B138735	BE	1
MP1203 AND MP1204	CAP AND CHAIN ASSY	A146202	BE	1
P201 THRU P205	NOT USED			
P206	CONNECTOR,PLUG,MALE,BNC TYPE	UG-88/U	AU	1
P1101 THRU P1105	NOT USED			
P1106	CONNECTOR,PLUG,MALE,BNC TYPE,RT ANGLE /POLARAD PART NO. A706211	8525	CX	1
P1107	SAME AS P206			
P1201 AND P1202	SAME AS P206			
P1203 AND P1204	NOT USED			
P1205	SAME AS P206			
R1201	RESISTOR,COMPOSITION,100K,10 PCT,1/2W /MIL STD PART NO. MS35043-25	RC20GF104K	AU	1
R1202	RESISTOR,COMPOSITION,470K,10 PCT,1/2W /MIL STD PART NO. MS35043-29	RC20GF474K	AU	1
R1203	RESISTOR,COMPOSITION,47K,10 PCT,2W /MIL STD PART NO. MS35045-23	RC42GF473K	AU	1
R1204	RESISTOR,VARIABLE,COMPOSITION,50K,10 PCT,2W /POLARAD PART NO. 517853	JA2N056S503UA	D	1
R1205	SAME AS R1203			
R1206	RESISTOR,VARIABLE,COMPOSITION,100K,10 PCT,2W /POLARAD PART NO. 517923	JA2N056S104UA	D	1
R1207	RESISTOR,VARIABLE,WW,100K,5 PCT,9W /MODIFIED DS PART NO. 974R	B114392	BE	1

TABLE 6-10. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
R1208	RESISTOR,VARIABLE,COMPOSITION,25K,10 PCT,2W /POLARAD PART NO. 517851	JA2N056S253UA	D	1
R1209	RESISTOR,COMPOSITION,10K,10 PCT,1W /MIL STD PART NO. MS35044-19	RC32GF103K	AU	1
R1210	SAME AS R1206			
R1211	RESISTOR,COMPOSITION,22K,10 PCT,1W /MIL STD PART NO. MS35044-21	RC32GF223K	AU	1
R1212 AND R1213	RESISTOR,FILM,20K,1 PCT,1/2W	RN20X2002F	AU	1
R1214 THRU R1216	RESISTOR,FILM,430K,1 PCT,2W	RN30X4303F	AU	1
R1217	RESISTOR,WW,50K,5 PCT,10W /POLARAD PART NO. B708671	456E5035	BN	1
R1218	RESISTOR,WW,90K,1 PCT,7W /POLARAD PART NO. A710345	RS7-90K-1PCT	EB	1
R1219	RESISTOR,COMPOSITION,100K,10 PCT,2W /MIL STD PART NO. MS35045-25	RC42GF104K	AU	1
R1220	RESISTOR,VARIABLE,COMPOSITION,250K,10 PCT,2W /POLARAD PART NO. 517925	JA2N056S254UA	D	1
R1221	RESISTOR,VARIABLE,COMPOSITION,500K,10 PCT,2W /POLARAD PART NO. 517927	JA2N056S504UA	D	1
S1201	SWITCH,ROTARY,SPDT/POLARAD PART NO. A117767	81715	CP	1
S1202	SWITCH,SENSITIVE,DPDT /POLARAD PART NO. B706800	D8-4	GB	1
TB1201	TERMINAL BOARD,COMPONENT ASSY	B113174	BE	1
TB1202	TERMINAL BOARD,COMPONENT ASSY	B113170	BE	1
TB1203	TERMINAL BOARD/POLARAD PART NO. B704563	600-8	FD	1
T1201	TRANSFORMER,AF/POLARAD PART NO. B118250	ST2825	BQ	1
V1201	ELECTRON TUBE,KLYSTRON,10000-15500MC /POLARAD PART NO. A125538	V39C	FM	1
V1202	ELECTRON TUBE	6X4	CK	2
W1201	CABLE ASSY,IF	A127565	BE	1
W1202	CABLE ASSY,IF	A127566	BE	1
W1203	CABLE AND CRYSTAL HOLDER ASSY	B127567	BE	1
W1204	CABLE AND CRYSTAL HOLDER ASSY	B127568	BE	1
W1205	WAVEGUIDE ASSY	B115109	BE	1
XCR1201	HOLDER,CRYSTAL,NON-REPLACEABLE PART OF W1204			
XCR1202	HOLDER,CRYSTAL,NON-REPLACEABLE PART OF W1203			
XV1201	SOCKET,ELECTRON TUBE/POLARAD PART NO. A700541	78-S35-1001	F	1
XV1202	SOCKET,ELECTRON TUBE	TS102P01	AU	1
	SUPPLIED ACCESSORIES			
A1206	ACCESSORY KIT	A146828	BE	1
CP1201	TRANSITION,WAVGUIDE	B113181	BE	1

TABLE 6-11. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	260/140MC PREAMPLIFIER ASSY, A201			
A201	PREAMPLIFIER ASSY,260/140MC	E138777	BE	1
CR201	SEMICONDUCTOR DEVICE,DIODE	1N82	CK	5
C201	CAPACITOR,MICA,510UUF,10 PCT,300WVDC	CB21QD511K	AU	2
C202	CAPACITOR,MICA,1000UUF,10 PCT,300WVDC	CB21QD102K	AU	1
C203	CAPACITOR,VARIABLE,CERAMIC,2-12UUF,500WVDC /POLARAD PART NO. A701519	PCST-50	CH	1
C204	CAPACITOR,CERAMIC,470UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK60Y471Z	AU	1
C205 THRU C210	SAME AS C201			
C211	CAPACITOR,CERAMIC,2.2UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. A702521	301C0J229C	Y	1
C212	CAPACITOR,CERAMIC,15UUF,10 PCT,500WVDC	CC20CJ150K	AU	1
C213 AND C214	SAME AS C201			
C215	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C216	SAME AS C201			
C217 AND C218	SAME AS C202			
C219	CAPACITOR,CERAMIC,1000UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK61Y102Z	AU	1
C220 AND C221	SAME AS C202			
C222 AND C223	SAME AS C219			
C224 THRU C226	SAME AS C202			
C227	SAME AS C219			
C228	SAME AS C202			
C229 AND C230	NOT USED			
C231	SAME AS C203			
J201 THRU J203	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-625/U	AU	1
J204	CONNECTOR,RECEPTACLE,MALE,9 PINS /POLARAD PART NO. B704850	MRE7-2PG	CC	1
L201 AND L202	COIL,RF,1.8UH	A21248	BE	1
L203	COIL,RF,VARIABLE	B138779	BE	1
L204 THRU L209	SAME AS L201			

TABLE 6-11. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L210 THRU L215	COIL,RF,5UH	A21095	BE	1
L216	COIL,RF,0.8UH	A21094	BE	1
L217	COIL,RF,0.28UH	A21665	BE	1
L218	SAME AS L210			
L219 AND L220	NOT USED			
L221	COIL,RF,0.23UH	A146761	BE	1
R201 AND R202	RESISTOR,COMPOSITION,47 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-55	RC20GF470J	AU	1
R203	RESISTOR,COMPOSITION,10 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-1	RC20GF100K	AU	1
R204	RESISTOR,COMPOSITION,39 OHMS,5 PCT,1/2W /MIL STD PART NO. MS35043-53	RC20GF390J	AU	1
R205	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199	RC20GF181K	AU	1
R206	SAME AS R203			
R207	RESISTOR,COMPOSITION,1.2K,10 PCT,1/2W /MIL STD PART NO. MS35043-204	RC20GF122K	AU	1
T200	COIL,RF,VARIABLE,USED WITH SINGLE LOOP COIL FOR SECONDARY WINDING OF TRANSFORMER	B138775	BE	1
T201	COIL,RF,VARIABLE,USED WITH SINGLE LOOP COIL FOR SECONDARY WINDING OF TRANSFORMER	B138773	BE	1
T202	COIL,RF,VARIABLE,USED WITH SINGLE LOOP COIL FOR SECONDARY WINDING OF TRANSFORMER	B138774	BE	1
V201 AND V202	ELECTRON TUBE/POLARAD PART NO. B702935	7077	CK	4
V203	ELECTRON TUBE	6AK5	CK	2
XV201	SOCKET,ELECTRON TUBE	B138768	BE	1
XV202	SOCKET,ELECTRON TUBE	B138764	BE	1
XV203	SOCKET,ELECTRON TUBE	TS102C01	AU	1

TABLE 6-12. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	260/140MC PREAMPLIFIER ASSY, A202			
A202	PREAMPLIFIER ASSY,260/140MC	C27646	BE	1
CR201	NOT USED			
CR202	SEMICONDUCTOR DEVICE,DIODE	1N82	CK	5
C201 AND C202	NOT USED			
C203 AND C204	CAPACITOR,MICA,500UUF,10 PCT,500WVDC /POLARAD PART NO. B706816	370FC501K	Y	1
C205	CAPACITOR,MICA,1000UUF,10 PCT,500WVDC /POLARAD PART NO. B706815	370FC102K	Y	1
C206	CAPACITOR,CERAMIC,3UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. B709746	301C0J309C	Y	1
C207	NOT USED			
C208	CAPACITOR,CERAMIC,2.2UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. A702521	301C0J229C	Y	1
C209	SAME AS C203			
C210	NOT USED			
C211	SAME AS C203			
C212	CAPACITOR,CERAMIC,15UUF,10 PCT,500WVDC	CC20CG150K	AU	1
C213 THRU C215	SAME AS C203			
C216 AND C217	SAME AS C205			
C218	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C219 AND C220	CAPACITOR,CERAMIC,1000UUF,GMV,600WVDC /POLARAD PART NO. B709679	801Z5V102P	Y	1
C221 THRU C224	SAME AS C205			
C225	SAME AS C219			
C226	SAME AS C205			
C227	SAME AS C219			
C228	SAME AS C203			
C229	SAME AS C205			
J201	NOT USED			
J202 AND J203	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-625/U	AU	1
J204	NOT USED			
J205	CONNECTOR,RECEPTACLE,MALE,9 PINS /POLARAD PART NO. B704850	MRE7-2PG	CC	1
J206	SAME AS J202			

TABLE 6-12. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L201 THRU L203	COIL,RF,1.8UH	A21248	BE	1
L204	COIL,RF,VARIABLE	A21249	BE	1
L205	SAME AS L201			
L206 THRU L212	COIL,RF,5UH	A21095	BE	1
L213	COIL,RF,0.28UH	A21665	BE	1
L214	COIL,RF,0.8UH	A21094	BE	1
L215	COIL,RF,0.8UH	A21256	BE	1
L216 AND L217	COIL,RF,1.2UH	A21250	BE	1
R201 AND R202	NOT USED			
R203	RESISTOR,COMPOSITION,56 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-196	RC20GF560K	AU	1
R204	NOT USED			
R205	RESISTOR,COMPOSITION,10 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-1	RC20GF100K	AU	1
R206	RESISTOR,COMPOSITION,39 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-195	RC20GF390K	AU	1
R207	NOT USED			
R208	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199	RC20GF181K	AU	1
R209	SAME AS R205			
R210	RESISTOR,COMPOSITION,1.2K,10 PCT,1/2W /MIL STD PART NO. MS35043-204	RC20GF122K	AU	1
T201	TRANSFORMER,RF,VARIABLE	A21251	BE	1
T202	TRANSFORMER,RF,VARIABLE	A21252	BE	1
V201	ELECTRON TUBE	5876	CK	2
V202	ELECTRON TUBE	6AK5	CK	2
XV201	SOCKET,ELECTRON TUBE/POLARAD PART NO. A107688	54A16325	R	1
XV202	SOCKET,ELECTRON TUBE	TS102C01	AU	1

TABLE 6-13. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	260/140MC PREAMPLIFIER, A203			
A203	PREAMPLIFIER ASSY,260/140MC	C130601	BE	1
CR201	NOT USED			
CR202	SEMICONDUCTOR DEVICE,DIODE	1N82	CK	5
C201 AND C202	NOT USED			
C203 AND C204	CAPACITOR,MICA,500UUF,10 PCT,500WVDC /POLARAD PART NO. B706816	370FC501K	Y	1
C205	CAPACITOR,MICA,1000UUF,10 PCT,500WVDC /POLARAD PART NO. B706815	370FC102K	Y	1
C206 THRU C208	NOT USED			
C209	SAME AS C203			
C210	NOT USED			
C211	SAME AS C203			
C212	CAPACITOR,CERAMIC,15UUF,10 PCT,500WVDC	CC20CG150K	AU	1
C213 THRU C215	SAME AS C203			
C216 AND C217	SAME AS C205			
C218	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C219 AND C220	CAPACITOR,CERAMIC,1000UUF,GMV,600WVDC /POLARAD PART NO. B709679	801Z5V102P	Y	1
C221 THRU C224	SAME AS C205			
C225	SAME AS C219			
C226	SAME AS C205			
C227	SAME AS C219			
C228	SAME AS C203			
C229	SAME AS C205			
C230 AND C231	CAPACITOR,CERAMIC,820UUF,PLUS 100 PCT, MINUS 20 PCT,500WVDC	CK60Y821Z	AU	1
C232	CAPACITOR,CERAMIC,2.2UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. A702521	301C0J229C	Y	1
J201	NOT USED			
J202 AND J203	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-625/U	AU	1
J204	NOT USED			
J205	CONNECTOR,RECEPTACLE,MALE,9 PINS /POLARAD PART NO. B704850	MRE7-2PG	CC	1
J206	SAME AS J202			

TABLE 6-13. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
L201 THRU L203	COIL,RF,1.8UH	A21248	BE	1
L204	NOT USED			
L205	SAME AS L201			
L206 THRU L212	COIL,RF,5UH	A21095	BE	1
L213	COIL,RF,0.28UH	A21665	BE	1
L214	COIL,RF,0.8UH	A21094	BE	1
L215	COIL,RF,0.8UH	A21256	BE	1
L216 AND L217	COIL,RF,1.2UH	A21250	BE	1
L218	COIL,RF,VARIABLE	A130602	BE	1
R201 AND R202	NOT USED			
R203	RESISTOR,COMPOSITION,33 OHMS,10 PCT,1/2W /MIL ATD PART NO. MS35043-4	RC20GF330K	AU	1
R204	NOT USED			
R205	RESISTOR,COMPOSITION,10 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-1	RC20GF100K	AU	1
R206	RESISTOR,COMPOSITION,39 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-195	RC20GF390K	AU	1
R206	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199/ USED ON MODEL RS-T TUNING UNIT SERIAL NOS. 458,460,468,469,485 AND 490 ONLY	RC20GF181K	AU	1
R207	NOT USED			
R208	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199	RC20GF181K	AU	1
R209	SAME AS R205			
R210	RESISTOR,COMPOSITION,1.2K,10 PCT,1/2W /MIL STD PART NO. MS35043-204	RC20GF122K	AU	1
T201	TRANSFORMER,RF,VARIABLE	A21251	BE	1
T202	TRANSFORMER,RF,VARIABLE	A21252	BE	1
V201	ELECTRON TUBE	5876	CK	2
V202	ELECTRON TUBE	6AK5	CK	2
XV201	SOCKET,ELECTRON TUBE/POLARAD PART NO. A107688	54A16325	R	1
XV202	SOCKET,ELECTRON TUBE	TS102C01	AU	1

TABLE 6-14. PARTS LIST

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
	260/140MC PREAMPLIFIER ASSY, A1104			
A1104	PREAMPLIFIER ASSY,260/140MC	D115761	BE	1
CR1101 THRU CR1104	NOT USED			
CR1105	SEMICONDUCTOR DEVICE,DIODE	1N82	CK	5
C1101 THRU C1118	NOT USED			
C1119	CAPACITOR,CERAMIC,3UUF,0.25UUF TOL,600WVDC /POLARAD PART NO. B709746	301C0J309C	Y	1
C1120 AND C1121	NOT USED			
C1122 AND C1123	CAPACITOR,MICA,500UUF,10 PCT,500WVDC /POLARAD PART NO. B706816	370FC501K	Y	1
C1124 AND C1125	CAPACITOR,MICA,1000UUF,10 PCT,500WVDC /POLARAD PART NO. B706815	370FC102K	Y	1
C1126 AND C1127	SAME AS C1122			
C1128	CAPACITOR,PAPER,2.2UUF,10 PCT,500WVDC /POLARAD PART NO. B701926	GA-2.2UUF10PCT	CL	1
C1129	CAPACITOR,CERAMIC,15UUF,10 PCT,500WVDC	CC20CG150K	AU	1
C1130 AND C1131	SAME AS C1122			
C1132	CAPACITOR,CERAMIC,FEED-THRU,1000UUF,20 PCT, 500WVDC/POLARAD PART NO. A506409	327X5S102M	Y	1
C1133	CAPACITOR,CERAMIC,1000UUF,GMV,600WVDC /POLARAD PART NO. B709679	801Z5V102P	Y	1
C1134 AND C1135	SAME AS C1122			
C1136 THRU C1138	SAME AS C1124			
C1139	SAME AS C1133			
C1140	SAME AS C1124			
C1141	SAME AS C1133			
C1142 AND C1143	SAME AS C1124			
C1144	SAME AS C1133			
C1145	SAME AS C1124			
J1101 THRU J1108	NOT USED			
J1109 THRU J1111	CONNECTOR,RECEPTACLE,FEMALE,BNC TYPE	UG-625/U	AU	1
J1112 AND J1113	NOT USED			
J1114	CONNECTOR,RECEPTACLE,MALE,9 PINS /POLARAD PART NO. B704850	MRE7-2PG	CC	1

TABLE 6-14. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
J1115 THRU J1119	NOT USED			
J1120	CONNECTOR,RECEPTACLE,POLARIZED,MALE,1 PIN /POLARAD PART NO. A530601	P1M1PLRN	CC	1
L1101 THRU L1116	NOT USED			
L1117 THRU L1119	COIL,RF,1.8UH	A21248	BE	1
L1120	COIL,RF,VARIABLE	A21249	BE	1
L1121	SAME AS L1117			
L1122	NOT USED			
L1123 THRU L1129	COIL,RF,5UH	A21095	BE	1
L1130	COIL,RF,0.28UH	A21665	BE	1
L1131 AND L1132	COIL,RF,1.2UH	A21250	BE	1
L1133	COIL,RF,0.8UH	A21256	BE	1
L1134 AND L1135	COIL,RF,0.8UH	A21094	BE	1
R1101 THRU R1120	NOT USED			
R1121	RESISTOR,COMPOSITION,56 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-196	RC20GF560K	AU	1
R1122	RESISTOR,COMPOSITION,10 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-1	RC20GF100K	AU	1
R1123	RESISTOR,COMPOSITION,39 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-195/ USED ON SERIAL NOS. 196 THRU 217	RC20GF390K	AU	1
R1123	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199/ USED ON SERIAL NOS. 218 THRU 223	RC20GF181K	AU	1
R1124	SAME AS R1122			
R1125	RESISTOR,COMPOSITION,1.2K,10 PCT,1/2W /MIL STD PART NO. MS35043-204	RC20GF122K	AU	1
R1126	RESISTOR,COMPOSITION,180 OHMS,10 PCT,1/2W /MIL STD PART NO. MS35043-199	RC20GF181K	AU	1
T1101 AND T1102	NOT USED			
T1103	TRANSFORMER,RF,VARIABLE	A21251	BE	1
T1104	TRANSFORMER,RF,VARIABLE	A21252	BE	1
V1101 THRU V1104	NOT USED			
V1105	ELECTRON TUBE	5876	CK	2
V1106	ELECTRON TUBE	6AK5	CK	2
XV1101 THRU XV1104	NOT USED			

TABLE 6-14. PARTS LIST (Cont'd)

REF SYMBOL	DESCRIPTION	MANUFACTURER'S PART NUMBER	MFR'S CODE	MAINT QTY
XV1105	SOCKET,ELECTRON TUBE/POLARAD PART NO. A107688	54A16325	R	1
XV1106	SOCKET,ELECTRON TUBE	TS102C01	AU	1

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POLARAD ELECTRONIC INSTRUMENTS

A DIVISION OF POLARAD ELECTRONICS CORPORATION

34-02 QUEENS BOULEVARD · LONG ISLAND CITY 1, N.Y. · AREA CODE 212 · EXETER 2-4500

REQUEST FOR MAINTENANCE

FROM:

COMPANY NAME _____ DATE: _____

ADDRESS: _____ INDIVIDUAL _____

_____ POSITION _____

SECTION OR DIVISION _____ PHONE NO. _____ EXT. _____

_____

EQUIPMENT _____ DATE OF PURCHASE _____

MODEL _____ SERIAL NO. _____ ORDER NO. _____

_____

TROUBLE REPORT:

A. Description of trouble _____

_____

_____

_____

_____

_____

_____

B. Has trouble been localized? _____ If so, how and where: _____

_____

_____

_____

_____

_____

C. Instruments used and measurements taken, if any: _____

_____

_____

_____

D. Is trouble intermittent? _____

E. Hours of operation prior to this trouble _____

F. Date trouble occurred _____

G. Was factory consulted by telephone or letter prior to this request? _____

If so, give date and person to whom directed: _____

_____

H. Additional Comments: _____

_____

_____

_____

_____

_____

_____

When trouble develops requiring factory assistance, complete this form and send to:

Polarad Electronic Instruments
Division of
Polarad Electronics Corporation
34-02 Queens Boulevard
Long Island City 1, New York
ATTENTION: Service Department

After this report has been analyzed by the Service Department, you will be notified when a field service engineer will call on you to make the necessary repairs. If your trouble can best be corrected at the factory, we will so notify you with instructions and authorization for returning the equipment.

NO EQUIPMENT MAY BE RETURNED TO THE FACTORY WITHOUT WRITTEN AUTHORIZATION

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